Excellence in Compliance Testing

Certification Test Report

FCC ID: VEYCN1300W1

FCC Rule Part: 15.247

ACS Report Number: 14-2102.W04.1A

Manufacturer: xG Technology, Inc
Model: CN1300W1

Test Begin Date: **December 3, 2014**
Test End Date: **December 31, 2014**

Report Issue Date: January 14, 2015

ACCREDITED TESTING

FOR THE SCOPE OF ACCREDITATION UNDER CERTIFICATE NUMBER AT-1533

This report must not be used by the client to claim product certification, approval, or endorsement by ACLASS, ANSI, or any agency of the Federal Government.

Reviewed by:

Thierry Jean-Charles
EMC Engineer
Advanced Compliance Solutions, Inc.

This report contains 52 pages

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1 GENERAL

1.1 Purpose

The purpose of this report is to demonstrate compliance with Part 15 Subpart C of the FCC's Code of Federal Regulations for a Class II Permissive Change.

The purpose of the Class II permissive change is to add a new antenna / host configuration to the CN1300W1 module. The Class II permissive change applies to the 2.4 GHz mode of operation only.

1.2 Product Description

The model CN1300W1 is a 2 TX, 2 RX IEEE 802.11a,b,g,n MiniPCI wireless transceiver module. The module is integrated within the xG Technology CN1300, which consists of a PRO_SECTOR24015dual H&V_Box antenna enclosure with a router board.

Technical Information:

Modes of Operations:	WLAN 802.11b/g/n
Band of Operation:	802.11 b/g/n 20 MHz: 2412 MHz - 2462 MHz
	802.11n 40 MHz: 2422 MHz - 2452 MHz
Number of Channels:	802.11b/g/n 20 MHz: 11
	802.11n 40 MHz: 7
Modulation Format:	802.11b: CCK
	802.11g/n: OFDM
Antenna Type/Gain:	2x Mimo Sector Antenna, 15 dBi
Operating Voltage:	24 VDC through POE Injector

Manufacturer Information:
xG Technology, Inc
7771 West Oakland Park Blvd, Suite 231
Sunrise, FL 33351

Test Sample Serial Number(s): N/A

Test Sample Condition: The unit was in good operating condition with no physical damages.

1.3 Test Methodology and Considerations

The EUT was evaluated for radiated, RF conducted and power line conducted emissions for the 2.4 GHz band of the 802.11a/b/g/n module for the new host/antenna configuration.

The EUT was for radiated emissions when configured with the 15 dBi 2x mimo sector antenna up to the 10^{th} harmonic of the fundamental frequency. Both antenna paths were transmitting simultaneously.

The RF conducted measurements consist to the RF output power evaluation to account for the power reduction for a maximum EIRP of 36 dBm with the 15 dBi antenna.

The CN1300W1 was also evaluated for unintentional radiated emissions. The results are documented separately in a verification report.

The test software configuration used for the evaluation is provided below.

Table 1.4-1: 802.1b/g/n Radio Test Configuration

Mode of Operation	Frequency (MHz)	Channel	Test Software Power Setting	Data Rate Setting)
802.11b	2412	1	12	1 MBPS
	2437	6	14	
	2462	11	12	
802.11g	2412	1	7	6 MBPS
	2437	6	12	
	2462	11	7	
802.11n 20 MHz	2412	1	7	MCS0
	2437	6	12	
	2462	11	7	
802.11n 40 MHz	2422	3	1	
	2437	6	5	
	2452	9	1	

2 TEST FACILITIES

2.1 Location

The radiated and conducted emissions test sites are located at the following address:

Advanced Compliance Solutions, Inc.
3998 FAU Blvd, Suite 310
Boca Raton, Florida 33431
Phone: (561) 961-5585
Fax: (561) 961-5587
www.acstestlab.com

FCC Test Firm Registration #: 475089
Industry Canada Lab Code: 4175C

2.2 Laboratory Accreditations/Recognitions/Certifications

ACS is accredited to ISO/IEC 17025 by ANSI-ASQ National Accreditation Board under their ACLASS program and has been issued certificate number AT-1533 in recognition of this accreditation. Unless otherwise specified, all test methods described within this report are covered under the ISO/IEC 17025 scope of accreditation.

2.3 Radiated & Conducted Emissions Test Site Description

2.3.1 Semi-Anechoic Chamber Test Site

The EMC radiated test facility consists of an RF-shielded enclosure. The interior dimensions of the indoor semi-anechoic chamber are approximately 48 feet (14.6 m) long by 36 feet (10.8 m) wide by 24 feet (7.3 m) high and consist of rigid, 1/8 inch (0.32 cm) steel-clad, wood core modular panels with steel framing. In the shielded enclosure, the faces of the panels are galvanized and the chamber is self-supporting. 8-foot RF absorbing cones are installed on 4 walls and the ceiling. The steel-clad ground plane is covered with vinyl floor.

The turntable is driven by pneumatic motor, which is capable of supporting a 2000 lb. load. The turntable is flushed with the chamber floor which it is connected to, around its circumference, with a continuous metallic loaded spring. An EMCO Model 1050 Multi-device Controller controls the turntable position.

A pneumatic motor is used to control antenna polarizations and height relative to the ground. The height information is displayed on the control unit EMCO Model 1050.

The control room is an RF shielded enclosure attached to the semi-anechoic chamber with two bulkhead panels for connecting RF, and control cables. The dimension of the room is 7.3 m x 4.9 m x 3 m high and the entrance doors of both control and conducted rooms are 3 feet (0.91 m) by 7 feet (2.13 m).

A diagram of the Semi-Anechoic Chamber Test Site is shown in Figure 2.3.1-1 below:

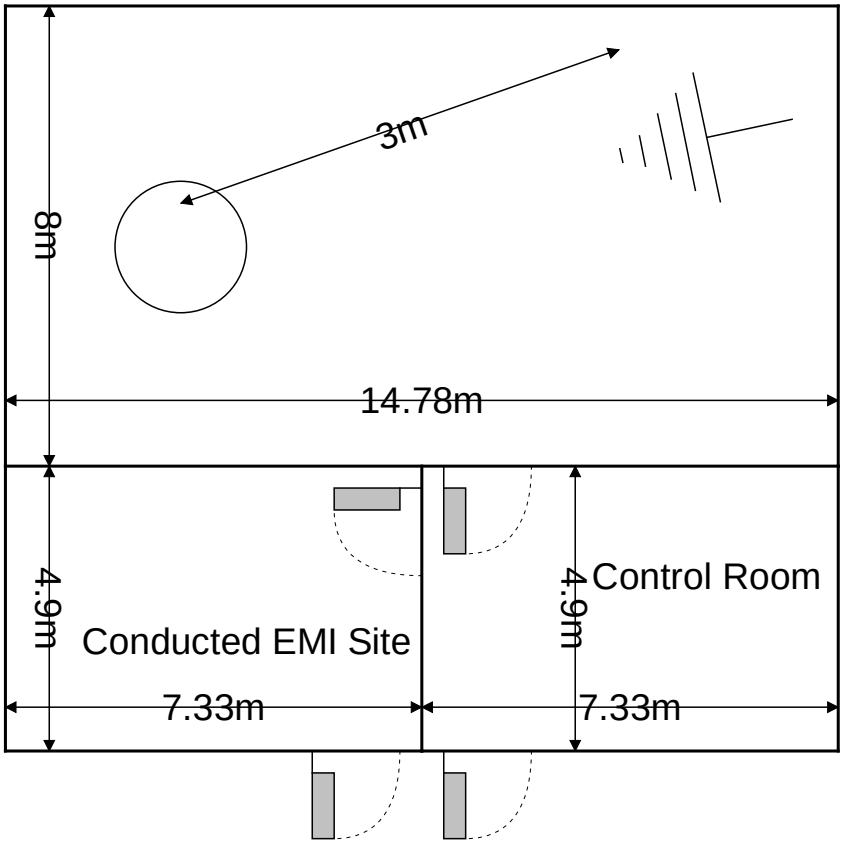


Figure 2.3.1-1: Semi-Anechoic Chamber Test Site

2.3.2 Conducted Emissions Test Site Description

The dimensions of the shielded conducted room are 7.3 x 4.9 x 3 m^3. As per ANSI C63.4 2009 requirements, the data were taken using two LISNs; a Solar Model 8028-50 50 Ω/50 µH and an EMCO Model 3825, which are installed as shown in Photograph 3. For evaluations requiring 220 V, 50 Hz, a Polarad LISN (S/N 879341/048) is used in conjunction with a 1 kVA, 50 Hz/220 V EDGAR variable frequency generator, Model 1001B, to filter conducted noise from the generator.

A diagram of the room is shown below in figure 2.3.2-1:

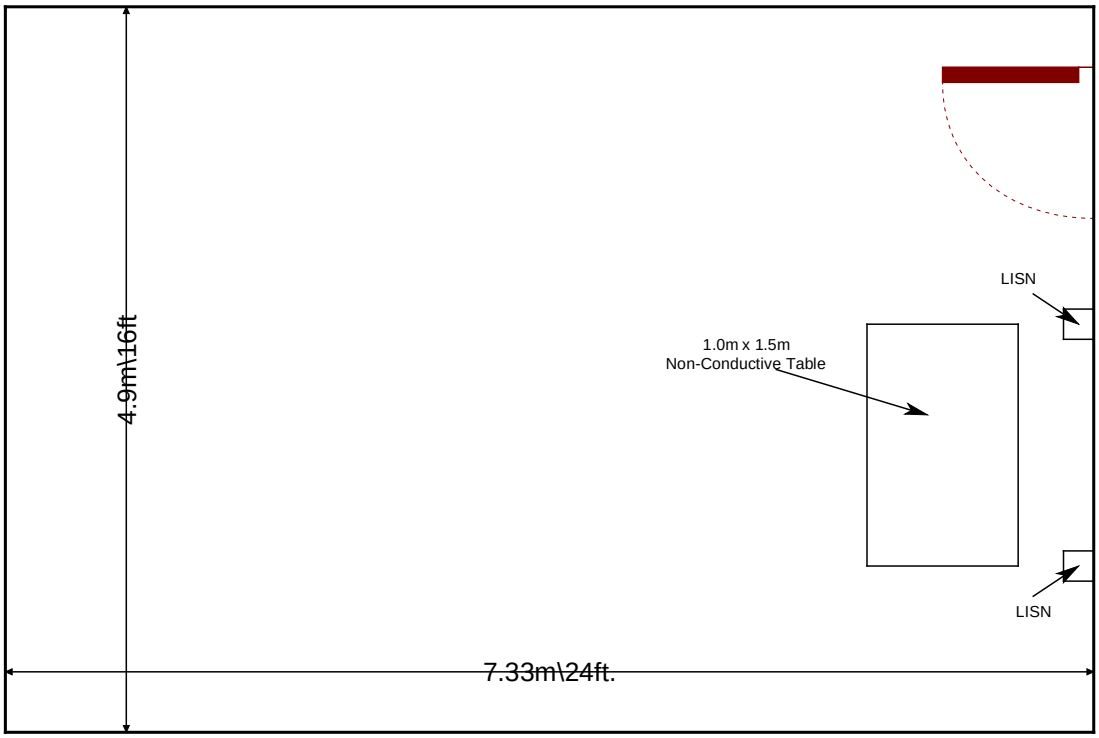


Figure 2.3.2-1: AC Mains Conducted EMI Site

3 APPLICABLE STANDARD REFERENCES

The following standards were used:

- ANSI C63.4-2009: Method of Measurements of Radio-Noise Emissions from Low-Voltage Electrical and Electronic Equipment in the 9KHz to 40GHz
- ANSI C63.10-2009: American National Standard for Testing Unlicensed Wireless Devices.
- US Code of Federal Regulations (CFR): Title 47, Part 2, Subpart J: Equipment Authorization Procedures, 2015
- US Code of Federal Regulations (CFR): Title 47, Part 15, Subpart C: Radio Frequency Devices, Intentional Radiators, 2015
- KDB Publication No. 558074 D01 Meas Guidance v03r02 – Guidance for Performing Compliance Measurements on Digital Transmission Systems (DTS) Operating Under 15.247, June 5, 2014.

4 LIST OF TEST EQUIPMENT

The calibration interval of test equipment is annually or the manufacturer's recommendations. Where the calibration interval deviates from the annual cycle based on the instrument manufacturer's recommendations, it shall be stated below.

Table 4-1: Test Equipment

AssetID	Manufacturer	Model #	Equipment Type	Serial #	Last Calibration Date	Calibration Due Date
2070	Mini Circuits	VHF-8400+	Filter	2070	1/1/2014	1/1/2015
2070	Mini Circuits	VHF-8400+	Filter	2070	12/31/2014	12/31/2015
2072	Mini Circuits	VHF-3100+	Filter	30737	1/1/2014	1/1/2015
2072	Mini Circuits	VHF-3100+	Filter	30737	12/31/2014	12/31/2015
2008	COM-Power	AH-826	Antennas	81009	NCR	NCR
2111	Aeroflex Inmet	40AH2W-20	Attenuator	2111	7/25/2014	7/25/2015
2082	Teledyne Storm Products	90-010-048	Cables	2082	5/8/2014	5/8/2015
2086	Merrimac	FAN-6-10K	Attenuators	23148-83-1	12/31/2013	12/31/2014
2086	Merrimac	FAN-6-10K	Attenuators	23148-83-1	12/31/2014	12/31/2015
283	Rohde & Schwarz	FSP40	Spectrum Analyzers	1000033	9/18/2013	9/18/2015
523	Agilent	E7405	Spectrum Analyzers	MY45103293	1/8/2013	1/8/2015
523	Agilent	E7405	Spectrum Analyzers	MY45103293	12/26/2014	12/26/2016
2002	EMCO	3108	Antennas	2147	11/22/2013	11/22/2015
2004	EMCO	3146	Antennas	1385	11/22/2013	11/22/2015
2006	EMCO	3115	Antennas	2573	4/24/2013	4/24/2015
2011	Hewlett-Packard	HP 8447D	Amplifiers	2443A03952	12/31/2013	12/31/2014
2011	Hewlett-Packard	HP 8447D	Amplifiers	2443A03952	12/31/2014	12/31/2015
2037	ACS Boca	Chamber EMI Cable Set	Cable Set	2037	2/27/2014	2/27/2015
2044	QMI	N/A	Cables	2044	12/31/2013	12/31/2014
2044	QMI	N/A	Cables	2044	12/31/2014	12/31/2015
22	Agilent	8449B	Amplifiers	3008A00526	7/30/2013	7/30/2015
2095	ETS Lindgren	TILE4! - Version 4.2.A	Software	85242	NCR	NCR
2022	EMCO	LISN3825/2R	LISN	1095	9/9/2013	9/9/2015
2045	ACS Boca	Conducted Cable Set	Cable Set	2045	1/1/2014	1/1/2015
2045	ACS Boca	Conducted Cable Set	Cable Set	2045	1/1/2015	1/1/2016
3004	Teseq	CFL 9206A	Attenuators	34720	10/21/2013	10/21/2015

Note: NCR=No Calibration Required

5 SUPPORT EQUIPMENT

Table 5-1: EUT and Support Equipment

Item #	Type Device	Manufacturer	Model/Part #	Serial #
1	Host	xG Technology	CN1300	00961
2	Switching Mode Power Supply/POE	Ubiquity Networks, Inc.	GP-A240-050	1347-0223385
3	Laptop	Dell	Vostro 1500	CN-0NX907-48643-83D-2730
4	Laptop AC Adapter	Dell	FA65NS0-00	CN-0yT886-73245-7C6-5807.
5	Ferrite	FAIR-RITE	0443164251	N/A
6	Ferrite	FAIR-RITE	0443164251	N/A
7	Ferrite	FAIR-RITE	0443164251	N/A

Table 5-2: Cable Description

Cable #	Cable Type	Length	Shield	Termination
A	Ethernet	2.44 m	Yes	Host to POE Adapter
B	Ethernet	10 m	No	POE Adapter to Laptop
C	Power	0.70 m	No	POE to Extension Cord
D	Power	1.83 m	No	Laptop to AC Adapter
E	Power	0.90 m	No	AC Adapter to AC Mains
F	Extension	1.82 m	No	POE supply to AC Mains

6 EQUIPMENT UNDER TEST SETUP BLOCK DIAGRAM

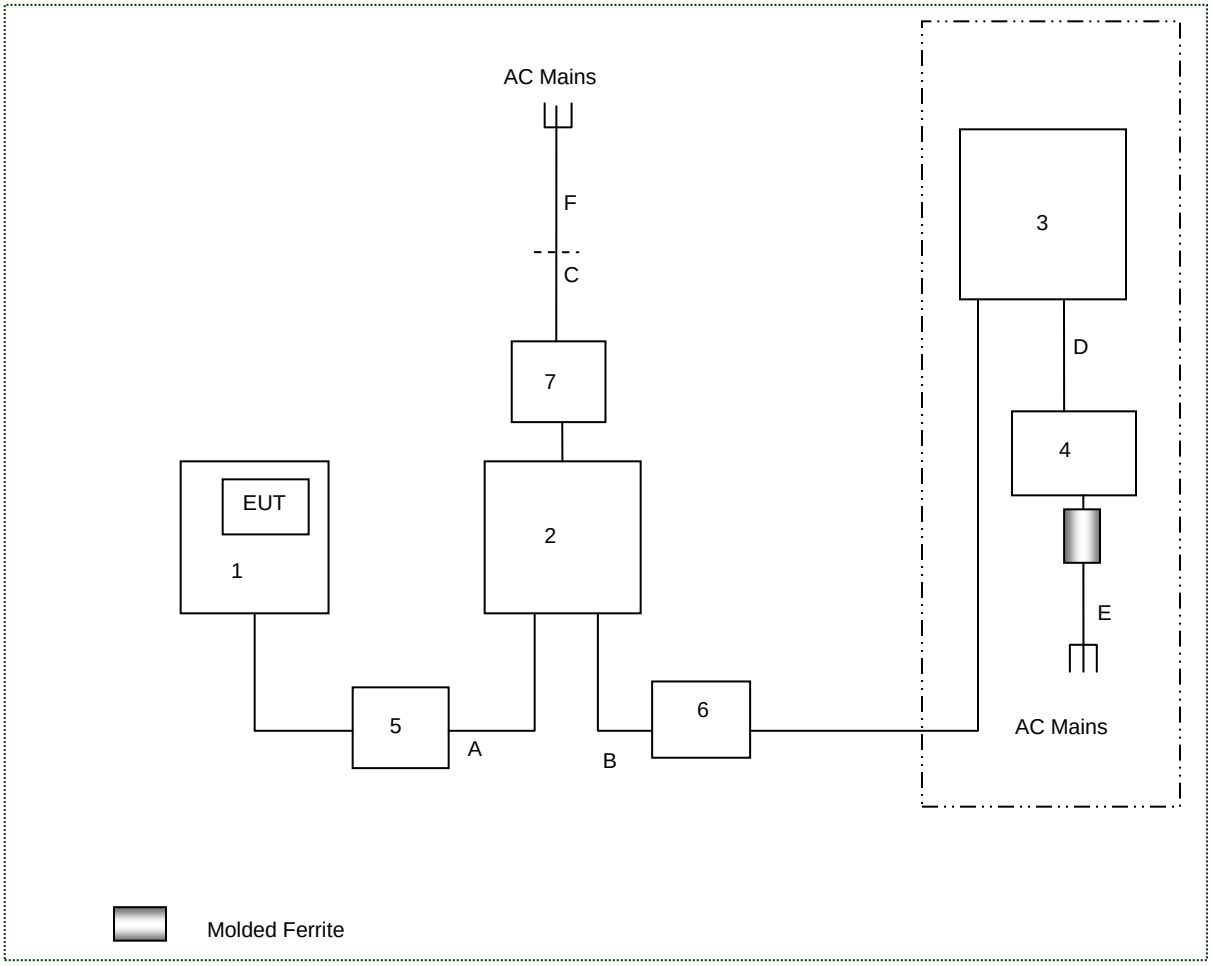


Figure 6-1: EUT Test Setup

Note: The equipment within the dotted box was set outside of the test environment during the radiated emission evaluation.

7 SUMMARY OF TESTS

Along with the tabular data shown below, plots were taken of all signals deemed important enough to document.

7.1 Antenna Requirement – FCC: Section 15.203

The CN1300W1 PCB provides two MMCX antenna connectors, thus showing compliance to the requirements of FCC 15.203.

7.2 Occupied Bandwidth (OBW)

7.2.1 Measurement Procedure

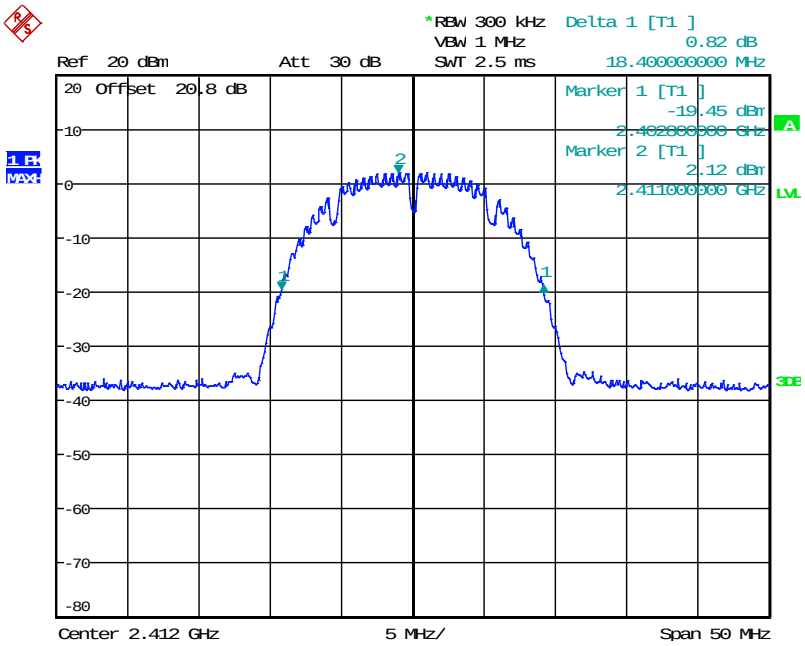
The occupied bandwidth (OBW) as defined in the FCC KDB Publication No. 558074 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (47 CFR 15.247)" was measured in accordance with ANSI C63.10. The Span of the Spectrum Analyzer was configured between two to five times the OBW. The RBW of the SA was set to 1% to 5% of the OBW. The reference level was set to the highest amplitude signal observed. The occupied OBW was measured 20 dB down from the reference level.

7.2.2 Measurement Results

Results are shown below.

Table 7.2.2-1: OBW 802.11b (Antenna Path 1)

Frequency [MHz]	Bandwidth (OBW) (MHz)
2412	18.40
2437	18.40
2462	18.40



Date: 31.DEC.2014 11:27:12

Figure 7.2.2-1: 20 dB BW - Low Channel (Antenna Path 1)

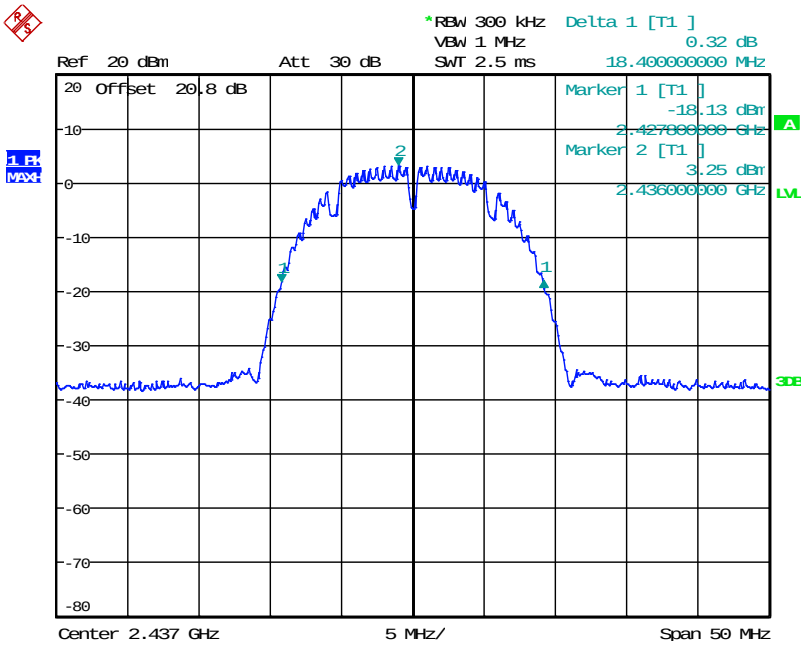


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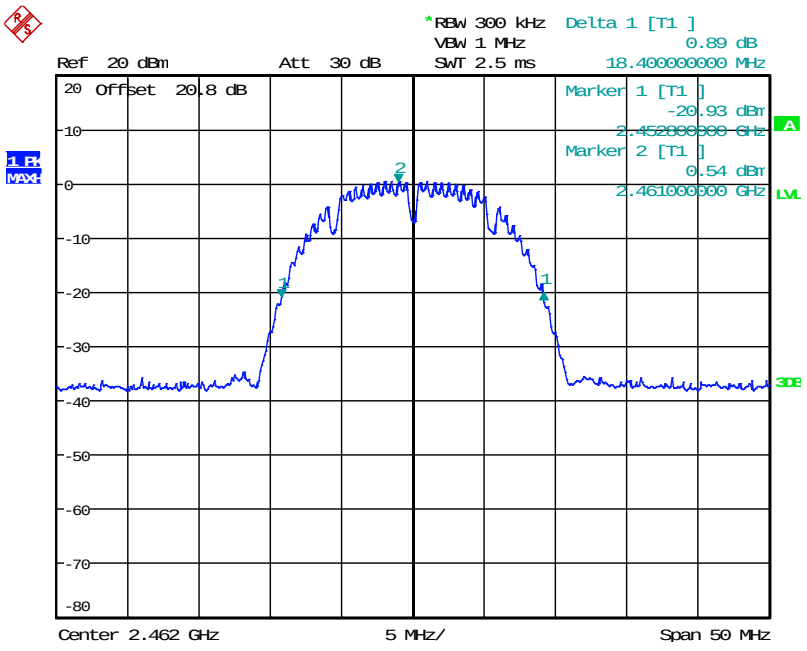
Figure 7.2.2-2: 20 dB BW - Middle Channel (Antenna Path 1)



Date: 31.DEC.2014 11:11:10

Figure 7.2.2-3: 20 dB BW - High Channel (Antenna Path 1)

Table 7.2.2-2: OBW 802.11b (Antenna Path 2)

Frequency [MHz]	Bandwidth (OBW) (MHz)
2412	18.40
2437	18.40
2462	18.40

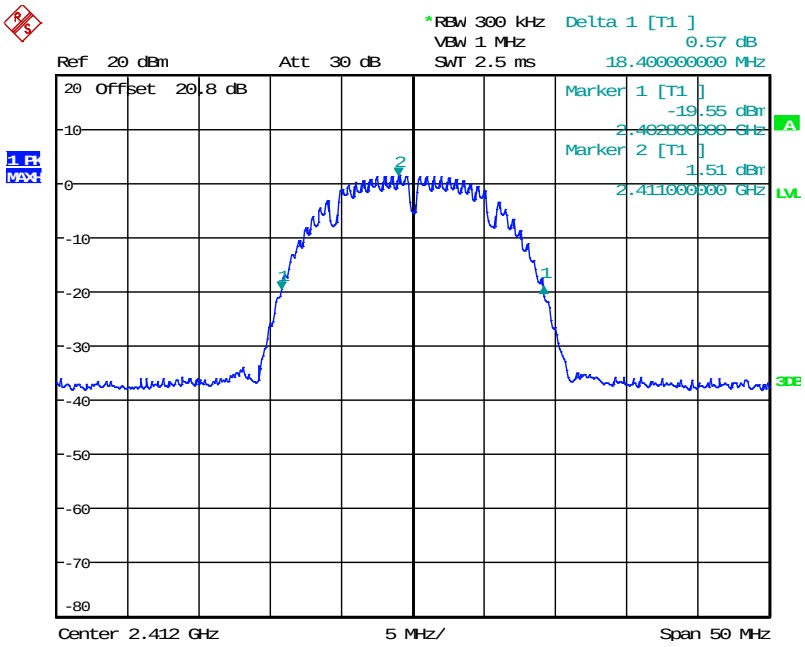
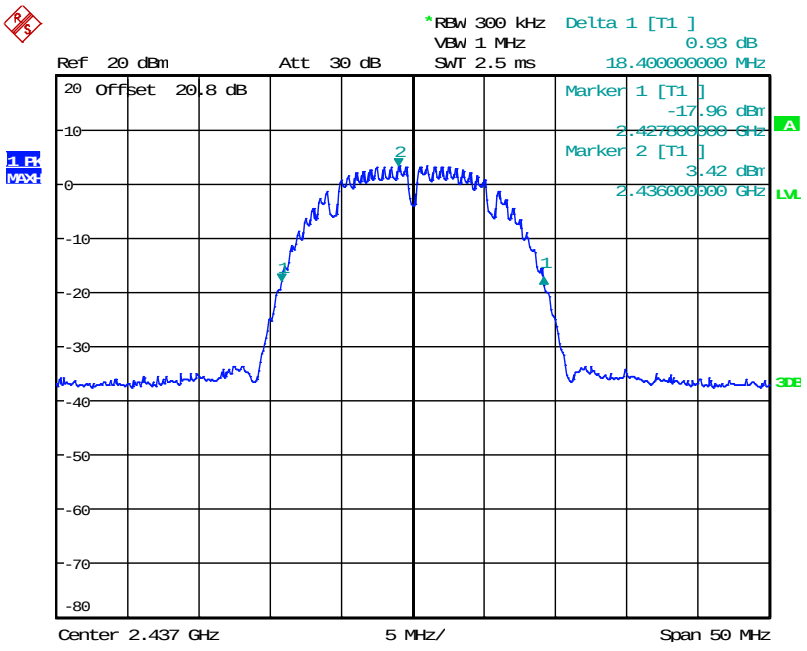
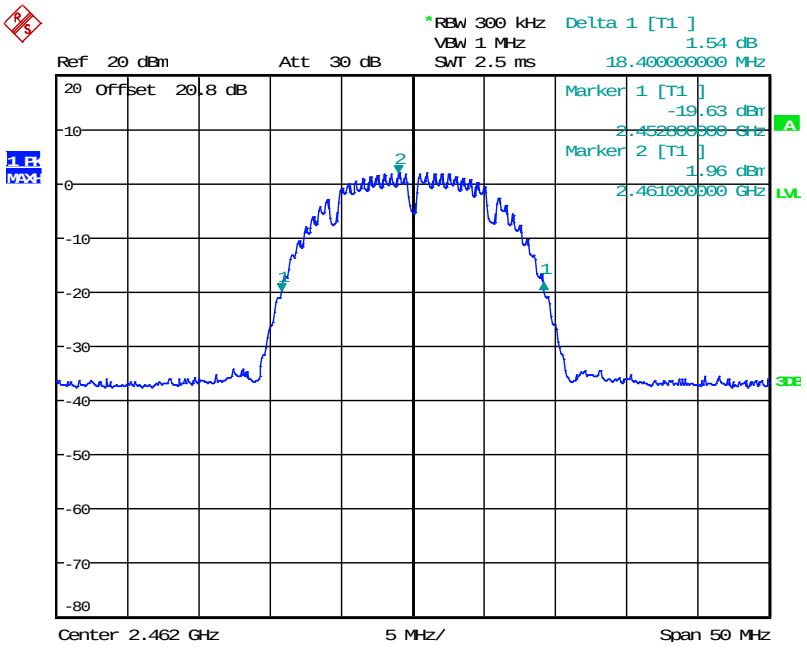


Figure 7.2.2-4: 20 dB BW - Low Channel (Antenna Path 2)



Date: 31.DEC.2014 11:46:47

Figure 7.2.2-4: 20 dB BW - Middle Channel (Antenna Path 2)



Date: 31.DEC.2014 12:10:39

Figure 7.2.2-6: 20 dB BW - High Channel (Antenna Path 2)

Table 7.2.2-3: OBW 802.11g (Antenna Path 1)

Frequency [MHz]	Bandwidth (OBW) (MHz)
2412	25.20
2437	25.40
2462	25.20

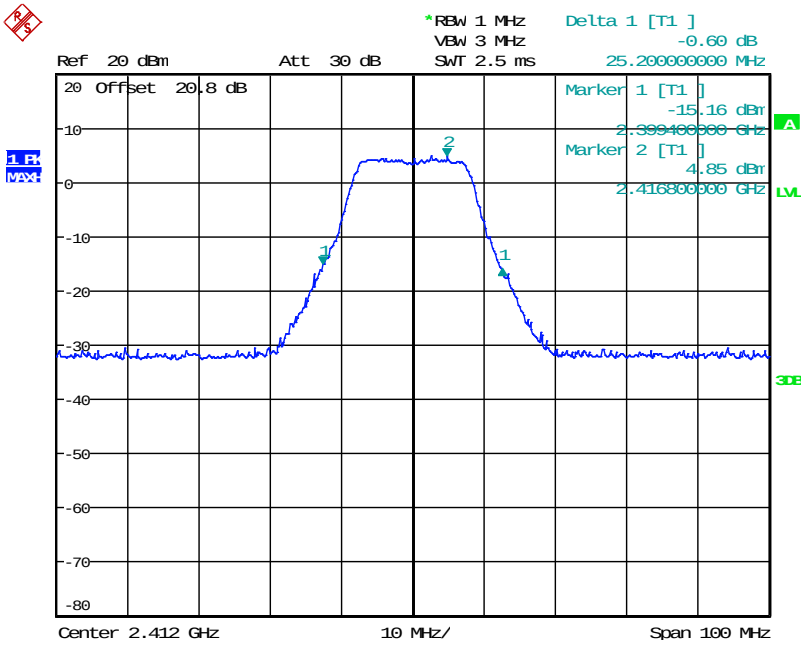
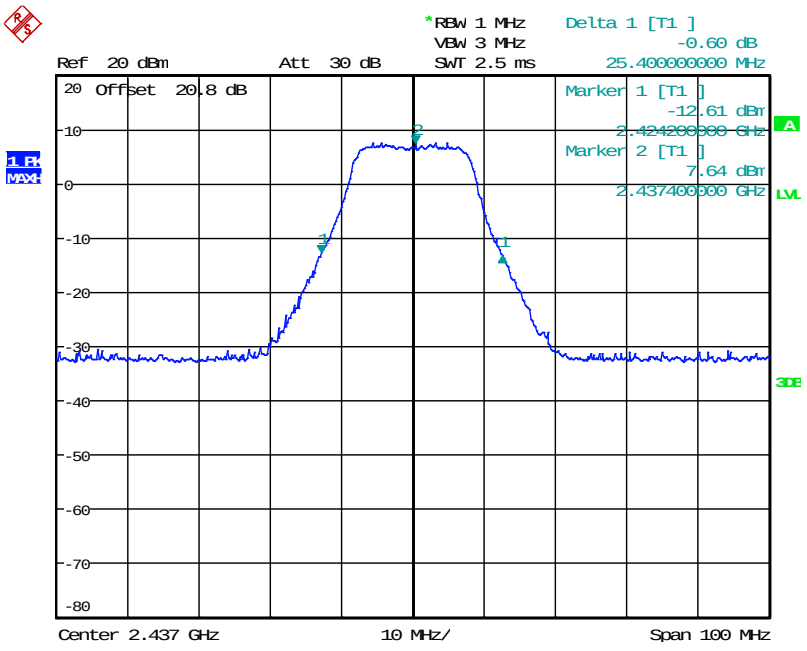
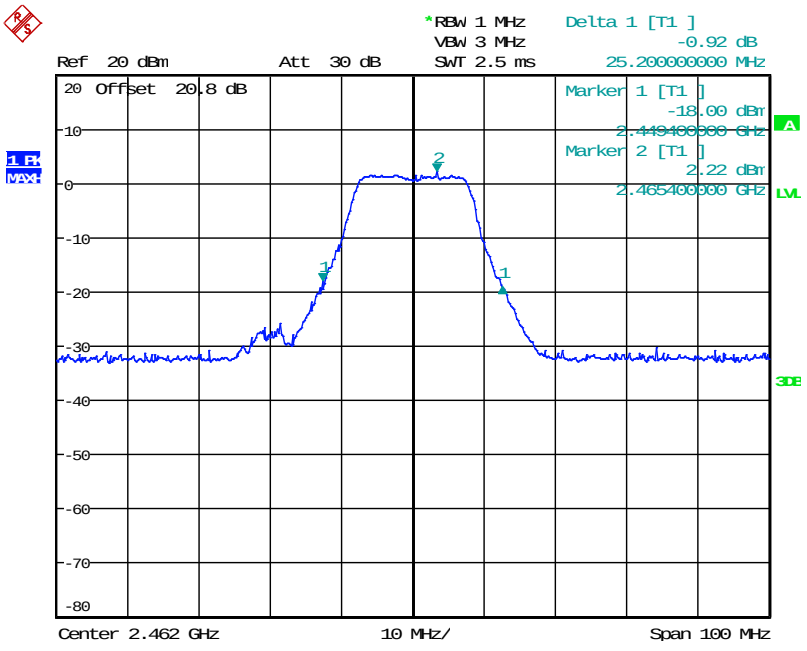


Figure 7.2.2-7: 20 dB OBW - Low Channel (Antenna Path 1)



Date: 31.DEC.2014 09:42:27

Figure 7.2.2-8: 20 dB OBW - Middle Channel (Antenna Path 1)



Date: 31.DEC.2014 11:03:02

Figure 7.2.2-9: 20 dB OBW - High Channel (Antenna Path 1)

Table 7.2.2-4: OBW 802.11g (Antenna Path 2)

Frequency [MHz]	Bandwidth (OBW) (MHz)
2412	23.80
2437	23.80
2462	23.60

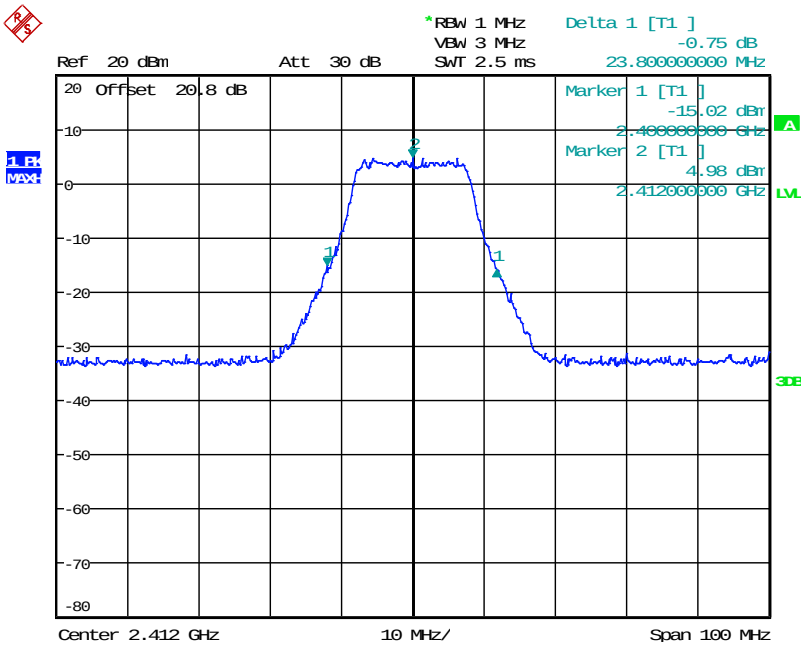
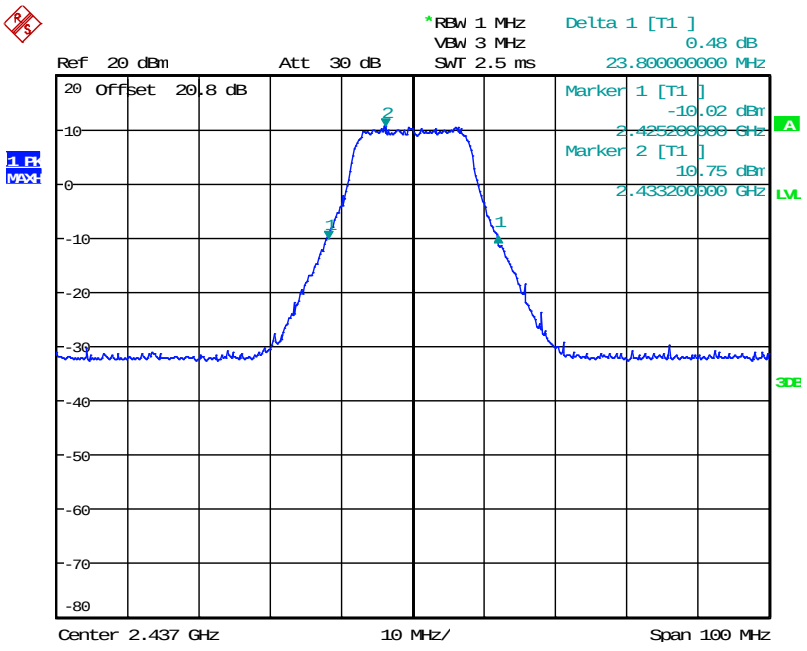
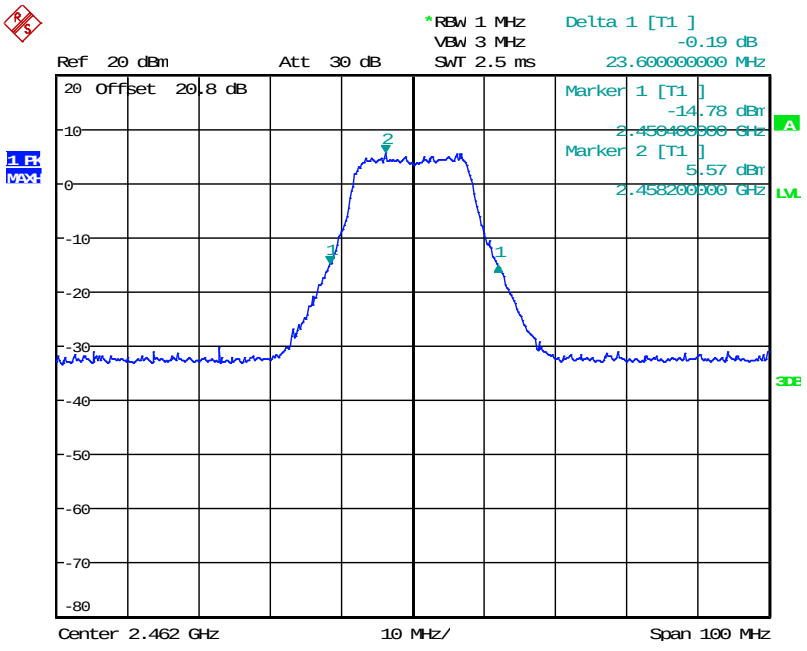


Figure 7.2.2-10: 20 dB OBW - Low Channel (Antenna Path 2)



Date: 30.DEC.2014 19:25:22

Figure 7.2.2-11: 20 dB OBW - Middle Channel (Antenna Path 2)



Date: 30.DEC.2014 18:54:34

Figure 7.2.2-12: 20 dB OBW - High Channel (Antenna Path 2)

Table 7.2.2-5: OBW 802.11n 20 MHz (Antenna Path 1)

Frequency [MHz]	Bandwidth (OBW) (MHz)
2412	26.00
2437	26.20
2462	26.20

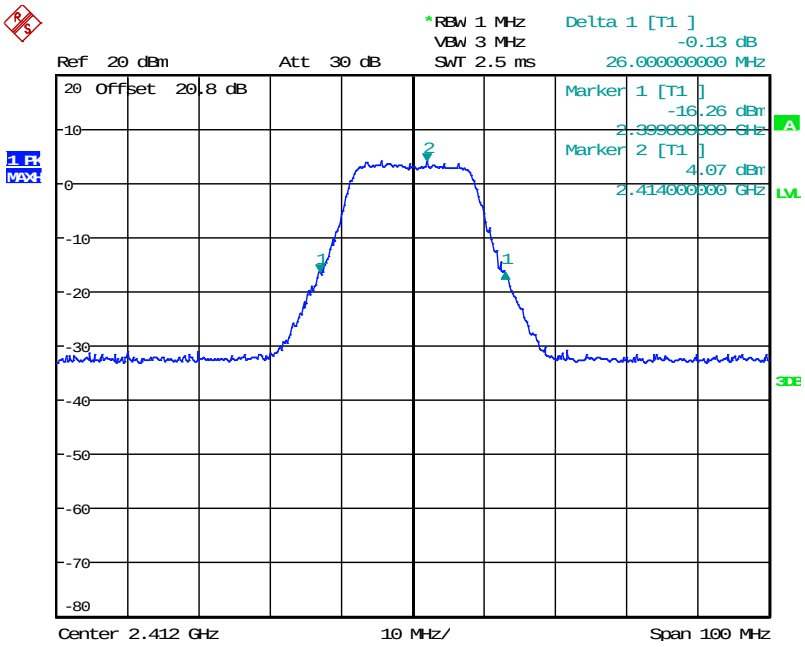
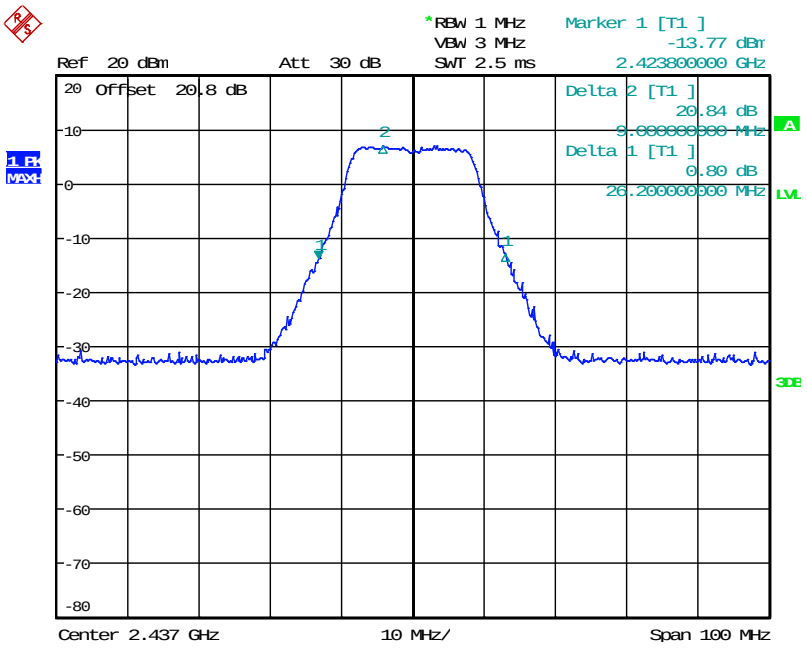
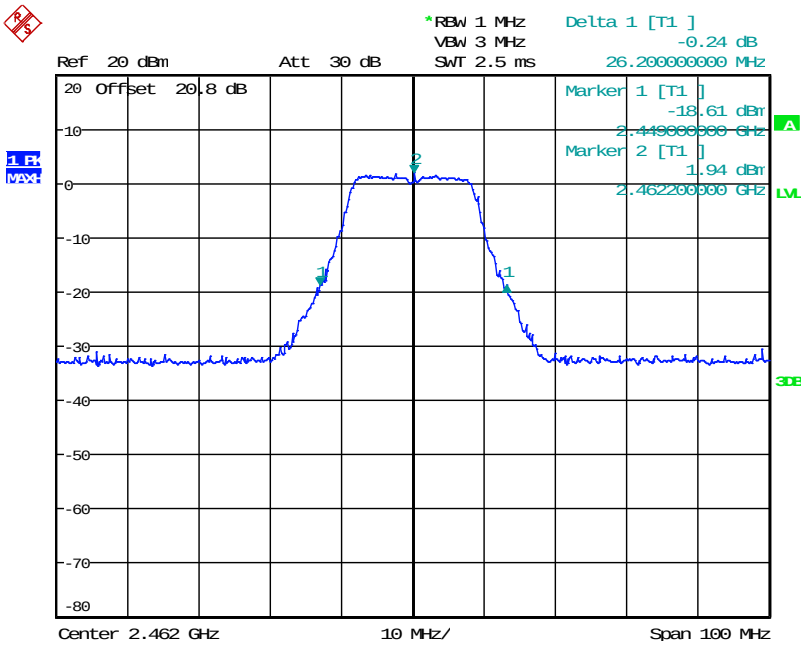


Figure 7.2.2-13: 20 dB BW - Low Channel (Antenna Path 1)



Date: 30.DEC.2014 17:46:03

Figure 7.2.2-14: 20 dB BW - Middle Channel (Antenna Path 1)



Date: 30.DEC.2014 17:38:17

Figure 7.2.2-15: 20 dB BW - High Channel (Antenna Path 1)

Table 7.2.2-6: OBW 802.11n 20 MHz (Antenna Path 2)

Frequency [MHz]	Bandwidth (OBW) (MHz)
2412	25.80
2437	25.60
2462	25.60

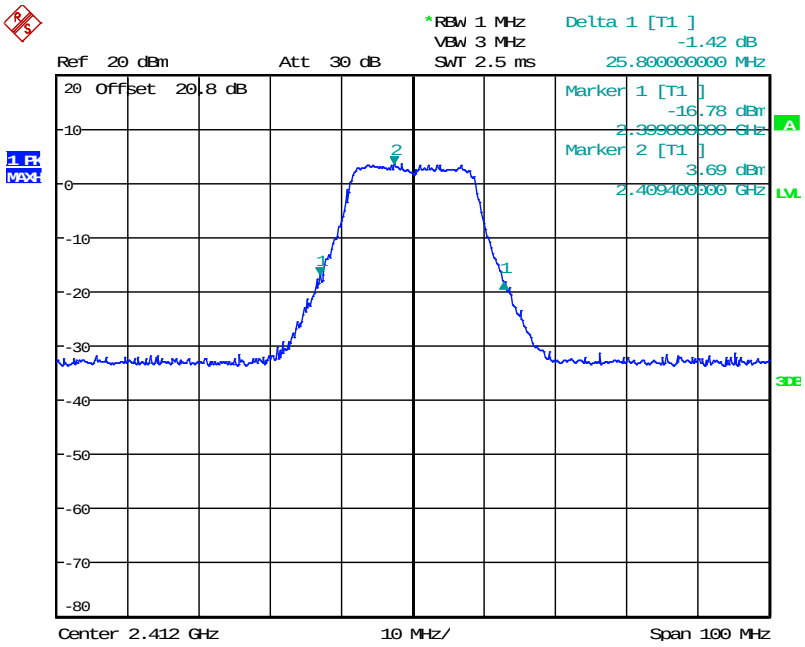
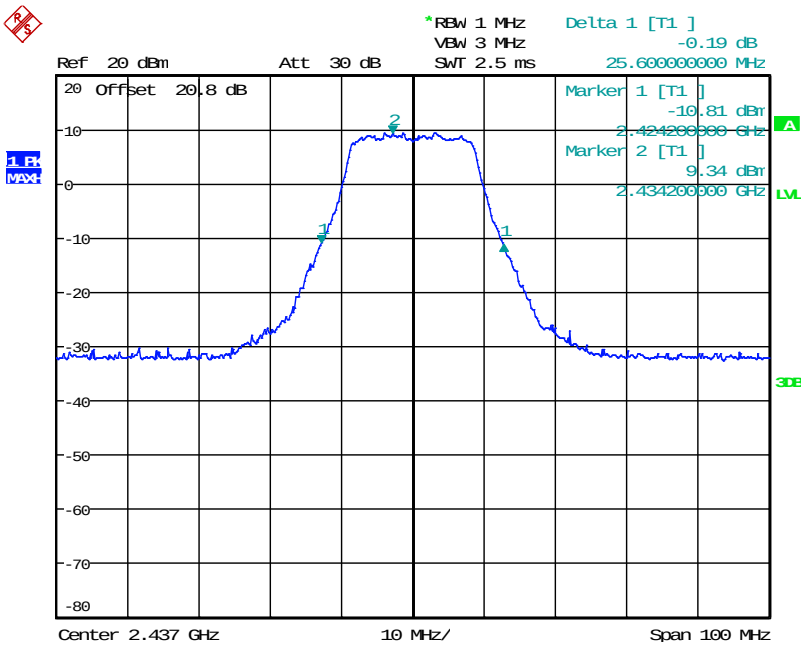
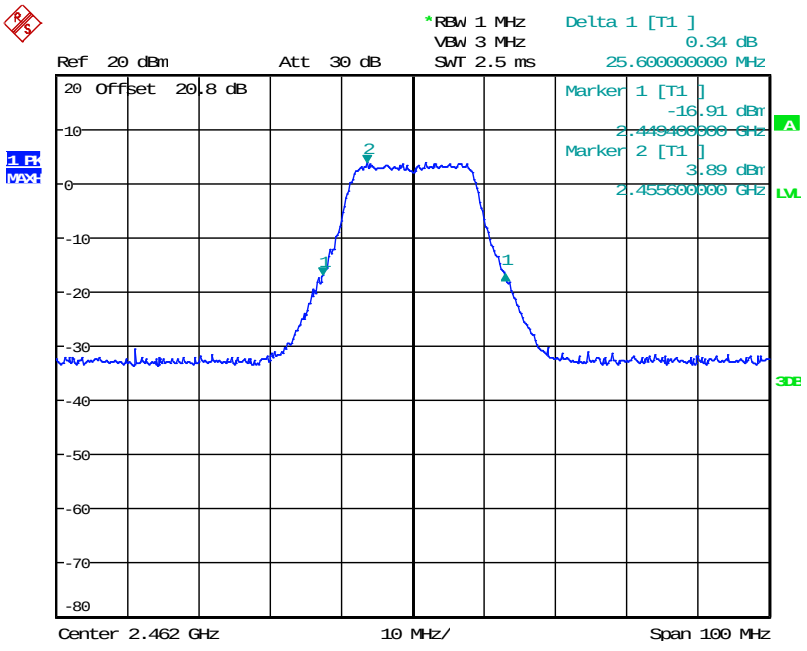


Figure 7.2.2-16: 20 dB BW - Low Channel (Antenna Path 2)



Date: 30.DEC.2014 18:19:57

Figure 7.2.2-17: 20 dB BW - Middle Channel (Antenna Path 2)



Date: 30.DEC.2014 18:43:12

Figure 7.2.2-18: 20 dB BW - High Channel (Antenna Path 2)

Table 7.2.2-7: OBW 802.11n 40 MHz (Antenna Path 1)

Frequency [MHz]	Bandwidth (OBW) (MHz)
2422	45.20
2437	47.00
2452	44.60

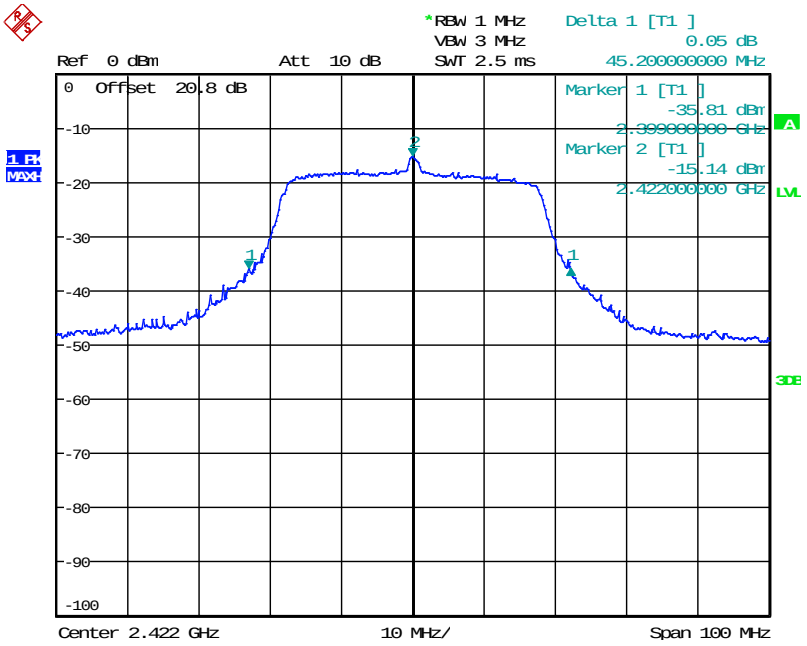


Figure 7.2.2-19: 20 dB OBW - Low Channel (Antenna Path 1)

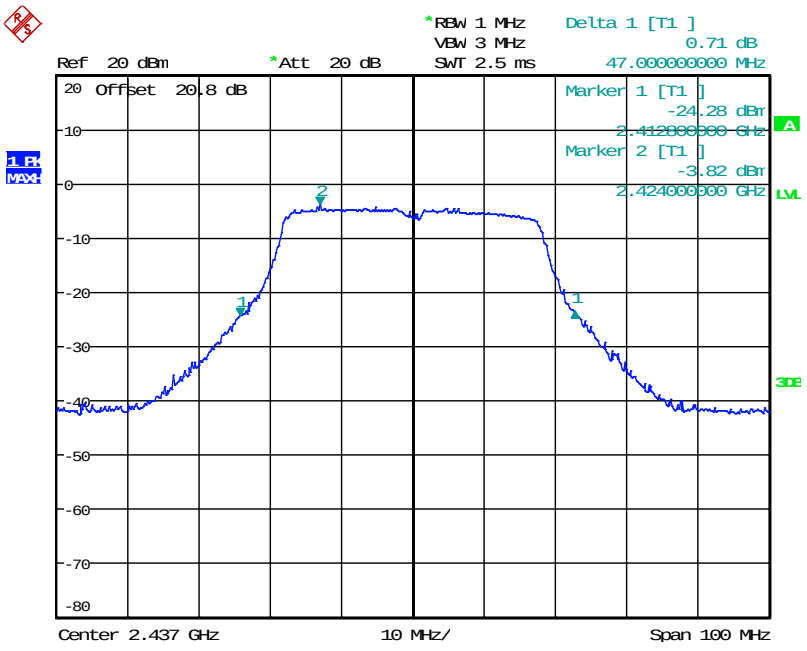


Figure 7.2.2-20: 20 dB OBW - Middle Channel (Antenna Path 1)

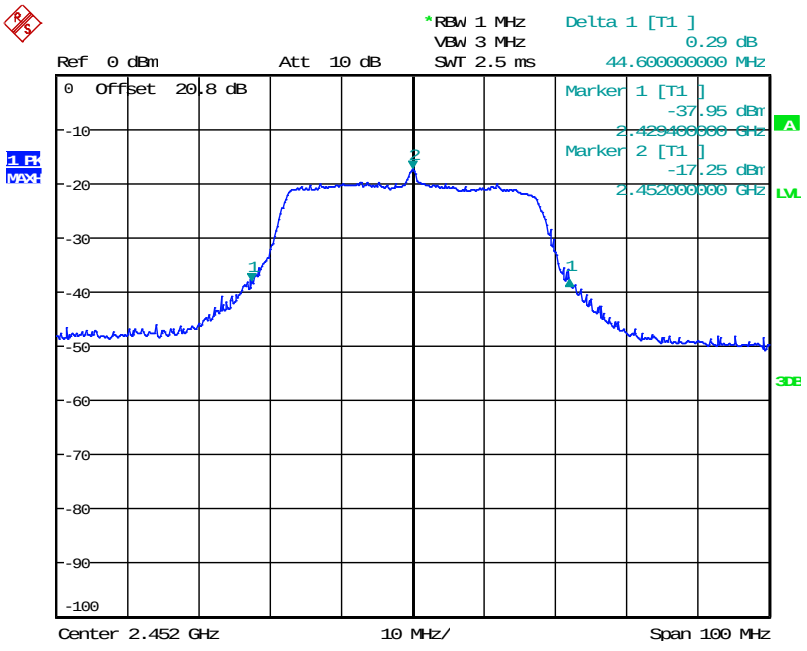


Figure 7.2.2-21: 20 dB OBW - High Channel (Antenna Path 1)

Table 7.2.2-8: OBW 802.11n 40 MHz (Antenna Path 2)

Frequency [MHz]	Bandwidth (OBW) (MHz)
2422	47.00
2437	46.20
2052	47.60

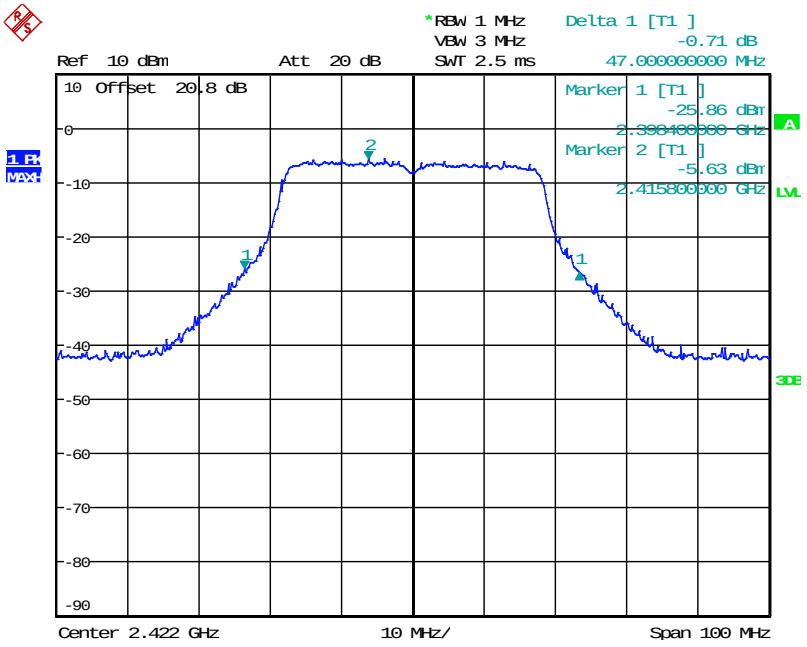
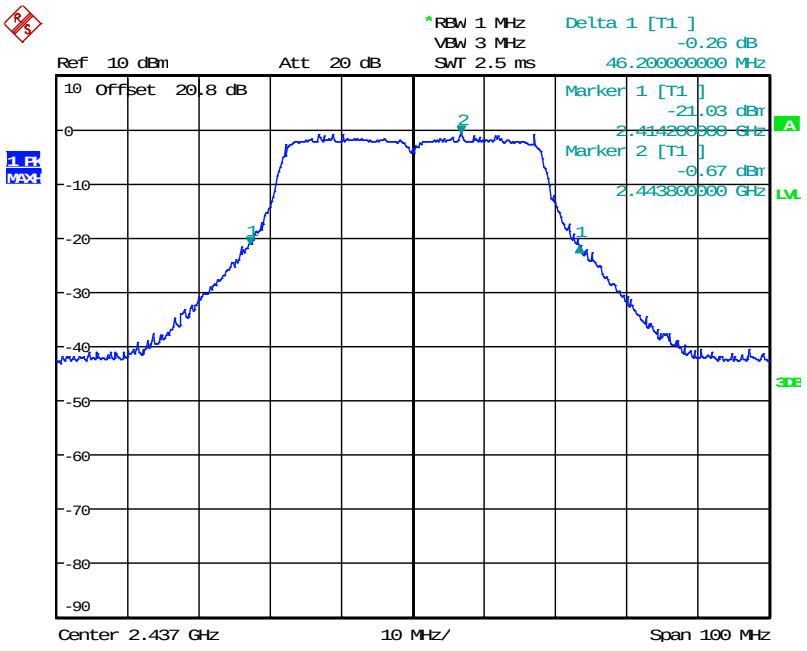
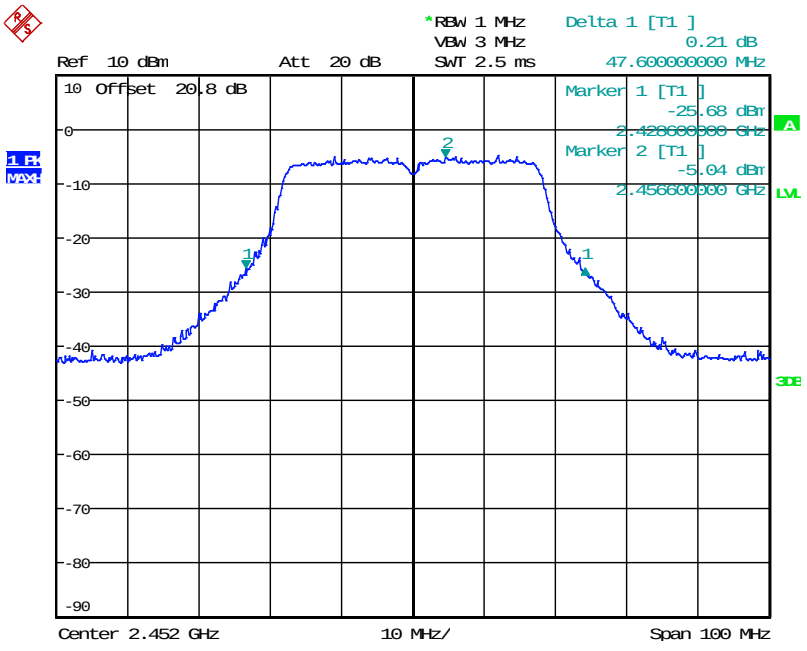


Figure 7.2.2-22: 20 dB OBW - Low Channel (Antenna Path 2)



Date: 30.DEC.2014 16:03:18

Figure 7.2.2-23: 20 dB OBW - Middle Channel (Antenna Path 2)



Date: 30.DEC.2014 16:13:41

Figure 7.2.2-24: 20 dB OBW - High Channel (Antenna Path 2)

7.3 Maximum Conducted Output Power - FCC Section 15.247(b)(3)

7.3.1 Measurement Procedure (Conducted Method)

The Peak Output Power was measured in accordance with the FCC KDB Publication No. 558074 "Guidance for Performing Compliance Measurements on Digital Transmission Systems (47 CFR 15.247)" Section 9.2.2 Method AVGSA-1 (trace averaging with the EUT transmitting at full power throughout each sweep). The RF output of the equipment under test was directly connected to the input of the spectrum analyzer through suitable attenuation.

7.3.2 Measurement Results

Results are shown below.

802.11b

Table 7.3.2-1: RF Output Power

Frequency [MHz]	Antenna Path 1 Level [dBm]	Antenna Path 2 Level [dBm]	Total Output Power [dBm]
2412	10.46	10.69	13.59
2437	12.07	12.26	15.18
2462	9.21	10.57	12.95

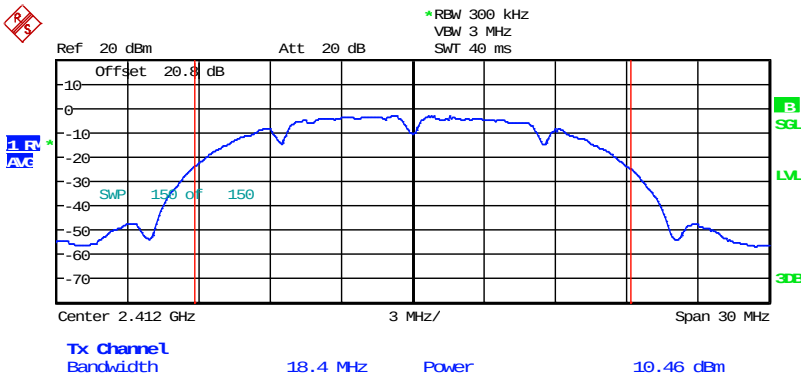
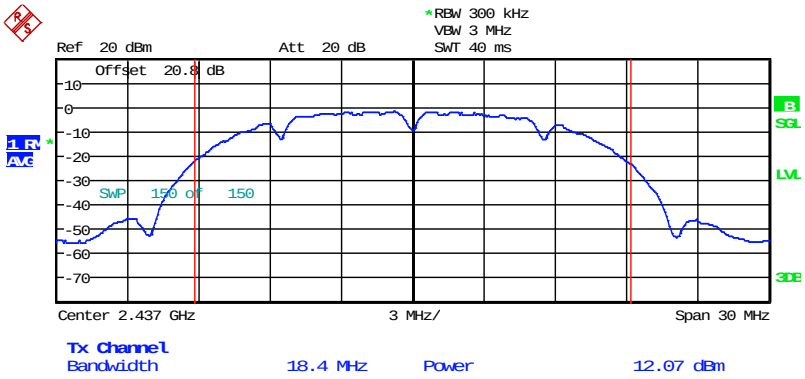
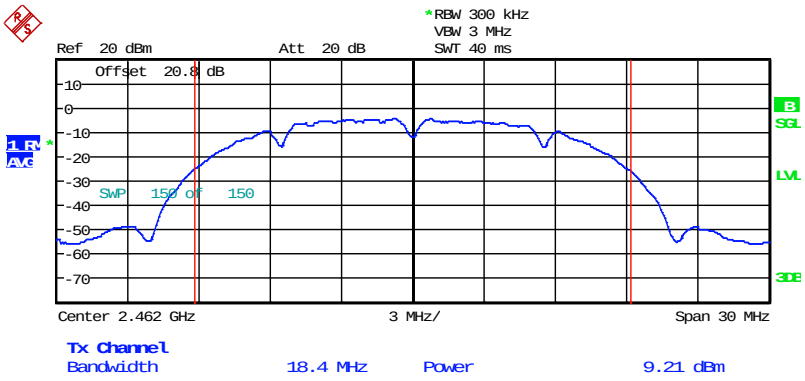


Figure 7.3.2-1: RF Output Power - Low Channel (Antenna Path 1)



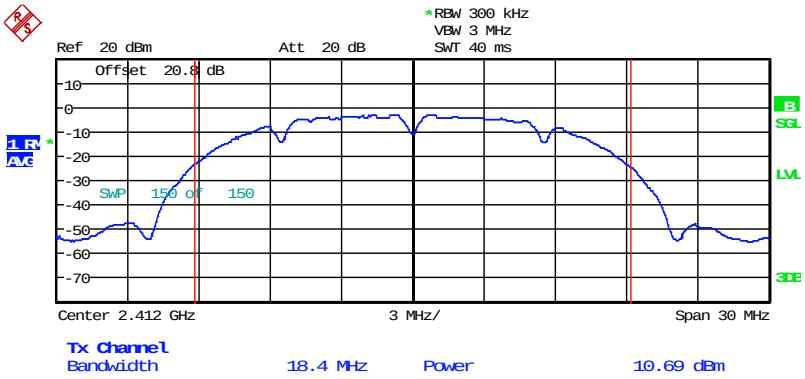
Date: 31.DEC.2014 11:34:07

Figure 7.3.2-2: RF Output Power - Middle Channel (Antenna Path 1)



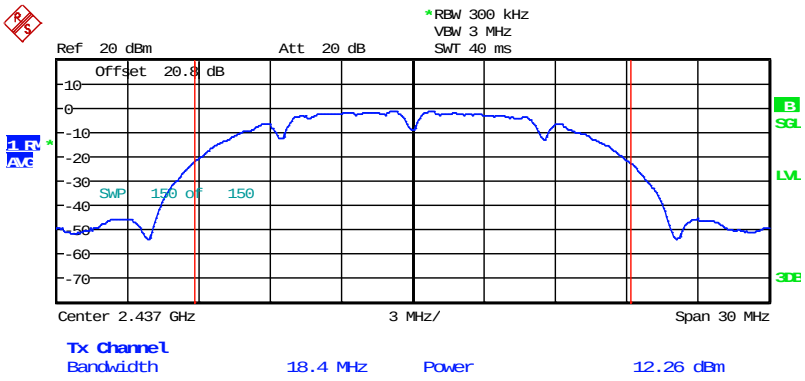
Date: 31.DEC.2014 11:22:17

Figure 7.3.2-3: RF Output Power - High Channel (Antenna Path 1)



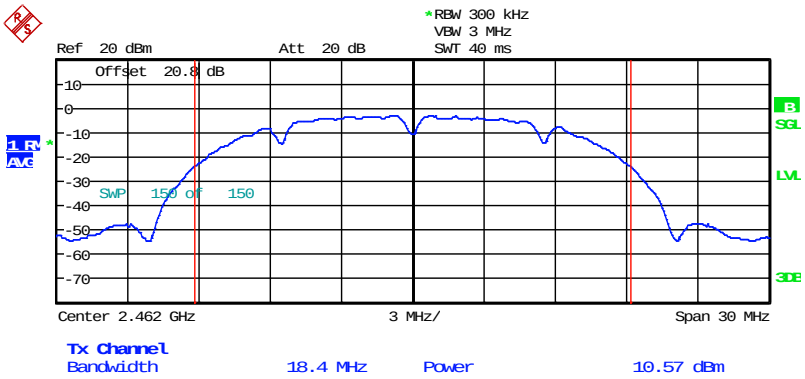
Date: 31.DEC.2014 11:57:54

Figure 7.3.2-4: RF Output Power - Low Channel (Antenna Path 2)



Date: 31.DEC.2014 11:48:34

Figure 7.3.2-5: RF Output Power - Middle Channel (Antenna Path 2)



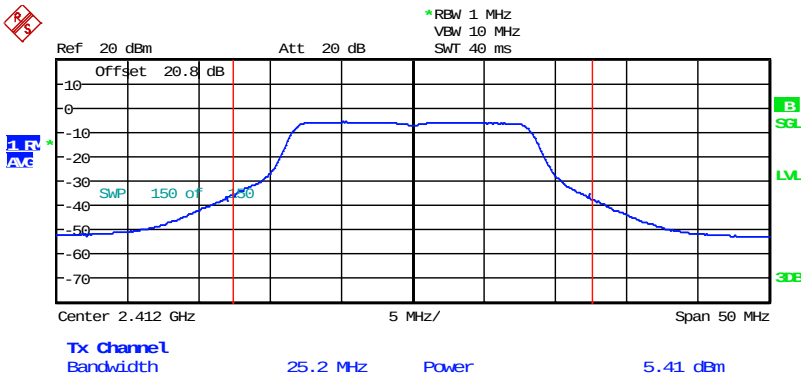
Date: 31.DEC.2014 12:12:40

Figure 7.3.2-6: RF Output Power - High Channel (Antenna Path 2)

802.11g

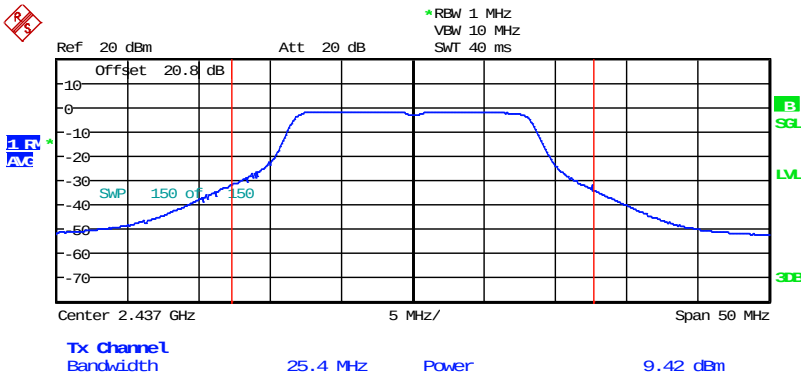
Table 7.3.2-2: RF Output Power

Frequency [MHz]	Antenna Path 1 Level [dBm]	Antenna Path 2 Level [dBm]	Total Output Power [dBm]
2412	5.41	5.44	8.44
2437	9.42	10.65	13.09
2462	3.02	5.62	7.52



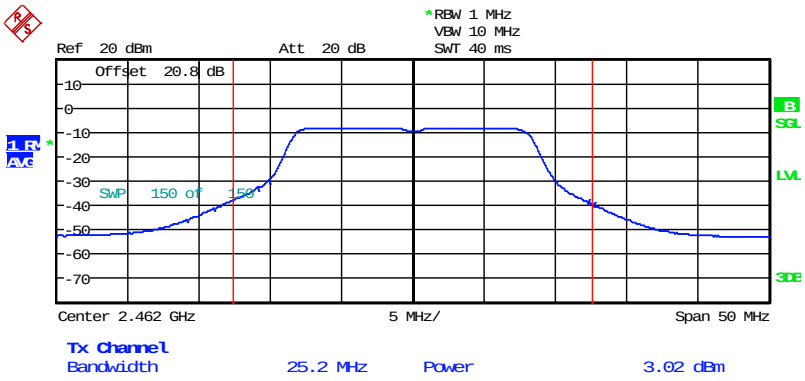
Date: 31.DEC.2014 10:48:22

Figure 7.3.2-7: RF Output Power - Low Channel (Antenna Path 1)



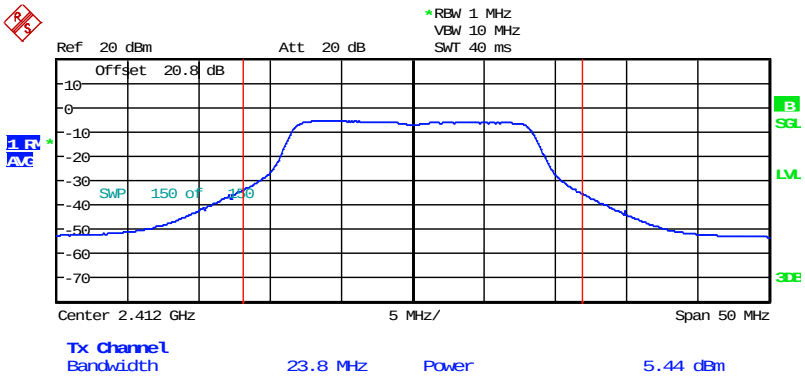
Date: 31.DEC.2014 10:10:58

Figure 7.3.2-8: RF Output Power - Middle Channel (Antenna Path 1)



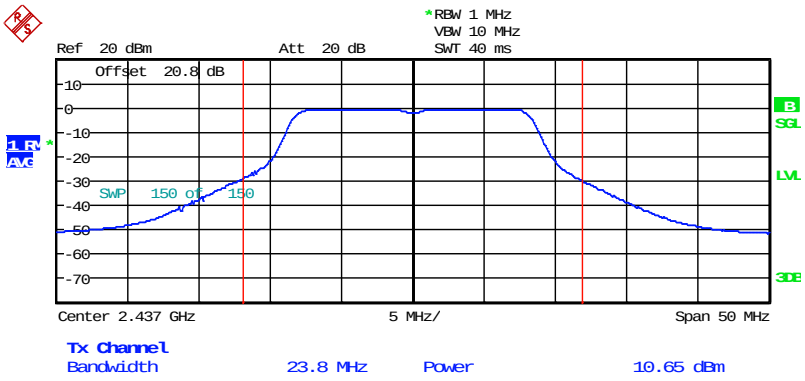
Date: 31.DEC.2014 11:05:02

Figure 7.3.2-9: RF Output Power - High Channel (Antenna Path 1)



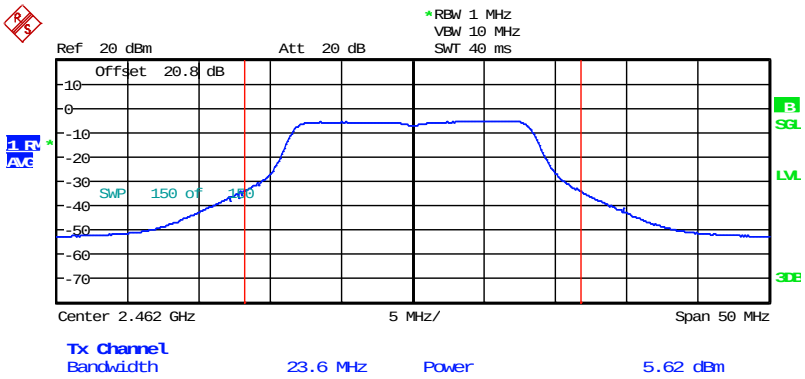
Date: 30.DEC.2014 19:01:52

Figure 7.3.2-10: RF Output Power - Low Channel (Antenna Path 2)



Date: 30.DEC.2014 19:27:42

Figure 7.3.2-11: RF Output Power - Middle Channel (Antenna Path 2)



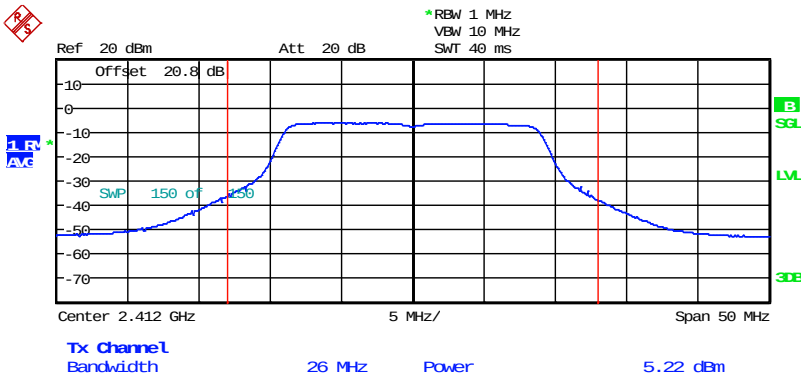
Date: 30.DEC.2014 18:56:56

Figure 7.3.2-12: RF Output Power - High Channel (Antenna Path 2)

802.11n 20 MHz

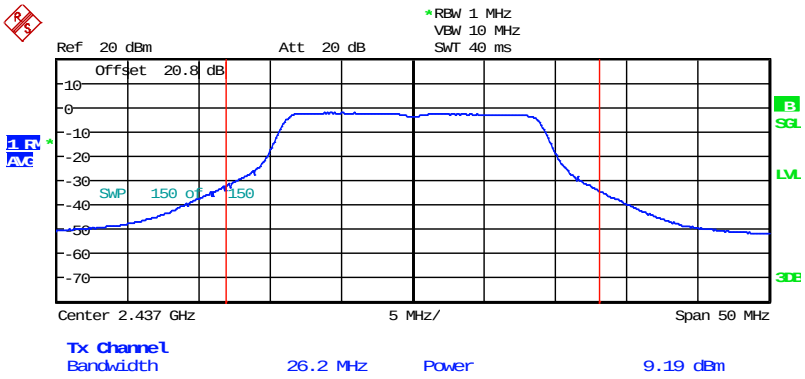
Table 7.3.2-3: RF Output Power

Frequency [MHz]	Antenna Path 1 Level [dBm]	Antenna Path 2 Level [dBm]	Total Output Power [dBm]
2412	5.22	5.45	8.35
2437	9.19	10.59	12.96
2462	3.10	5.69	7.60



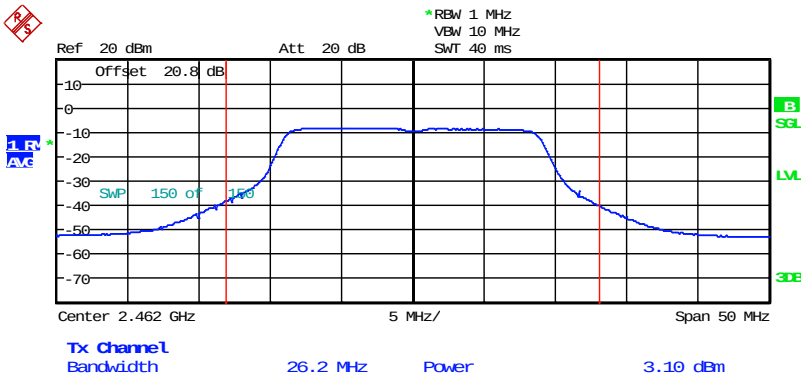
Date: 30.DEC.2014 17:34:06

Figure 7.3.2-13: RF Output Power - Low Channel (Antenna Path 1)



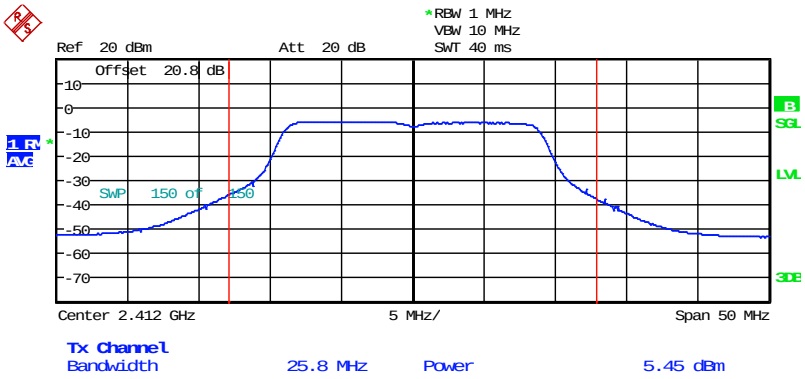
Date: 30.DEC.2014 17:48:40

Figure 7.3.2-14: RF Output Power - Middle Channel (Antenna Path 1)



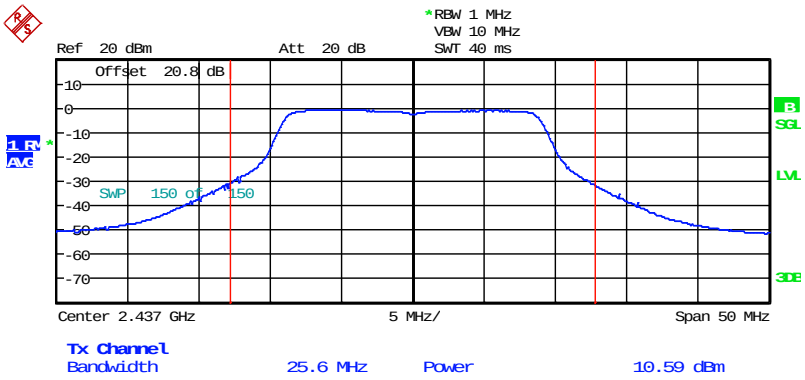
Date: 30.DEC.2014 17:41:15

Figure 7.3.2-15: RF Output Power - High Channel (Antenna Path 1)



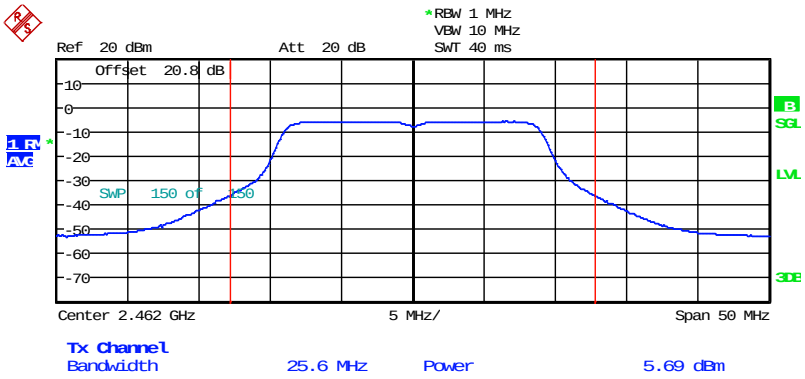
Date: 30.DEC.2014 18:39:14

Figure 7.3.2-16: RF Output Power - Low Channel (Antenna Path 2)



Date: 30.DEC.2014 18:24:05

Figure 7.3.2-17: RF Output Power - Middle Channel (Antenna Path 2)



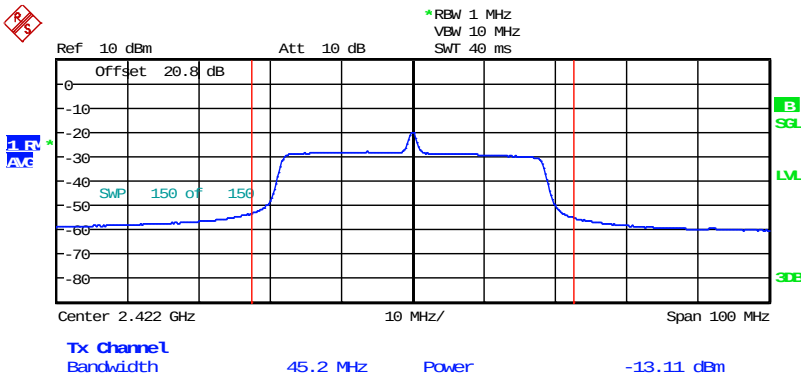
Date: 30.DEC.2014 18:45:31

Figure 7.3.2-18: RF Output Power - High Channel (Antenna Path 2)

802.11n 40 MHz

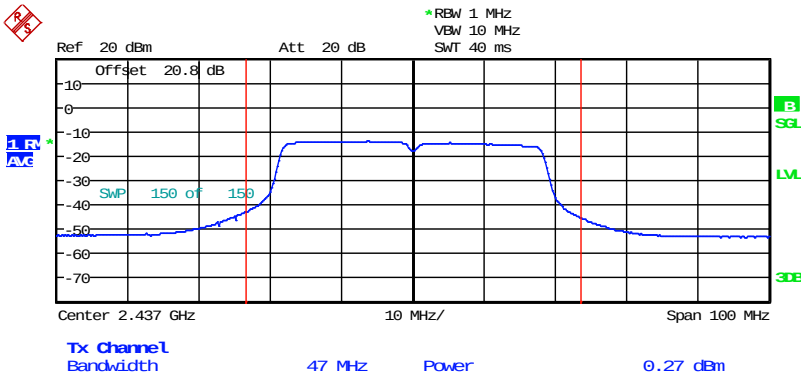
Table 7.3.2-4: RF Output Power

Frequency [MHz]	Antenna Path 1 Level [dBm]	Antenna Path 2 Level [dBm]	Total Output Power [dBm]
2422	-13.11	-1.68	-1.38
2437	0.27	3.86	5.44
2452	-14.67	-0.58	-0.41



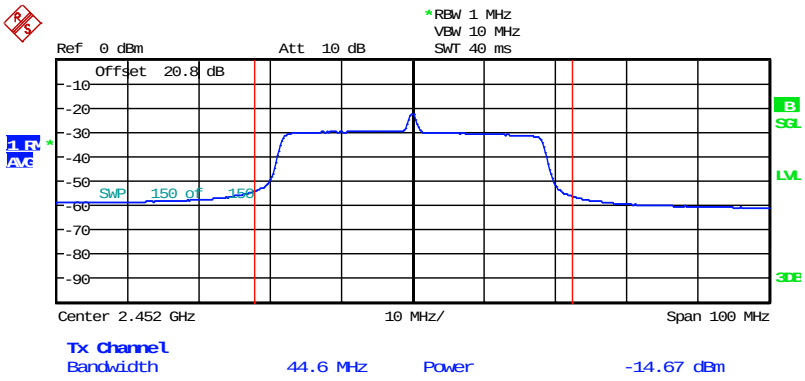
Date: 30.DEC.2014 17:08:00

Figure 7.3.2-19: RF Output Power - Low Channel (Antenna Path 1)



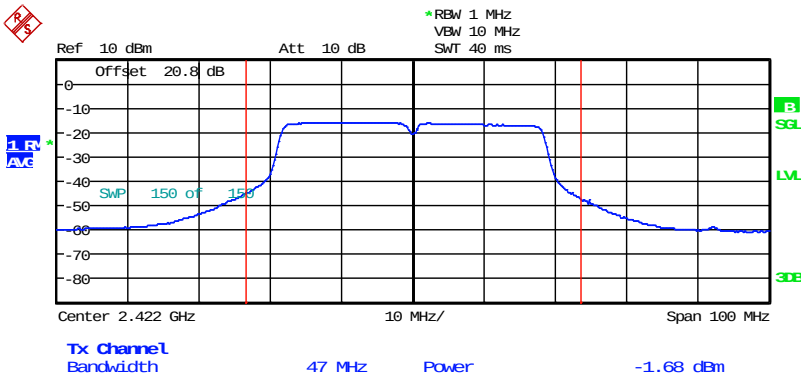
Date: 30.DEC.2014 15:12:34

Figure 7.3.2-20: RF Output Power - Middle Channel (Antenna Path 1)



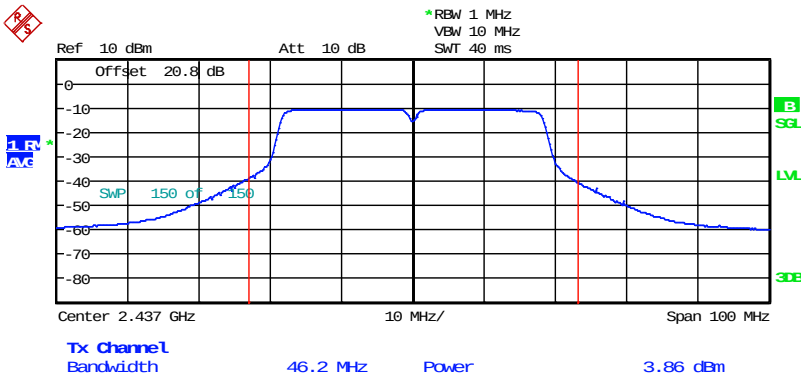
Date: 30.DEC.2014 15:21:21

Figure 7.3.2-21: RF Output Power - High Channel (Antenna Path 1)



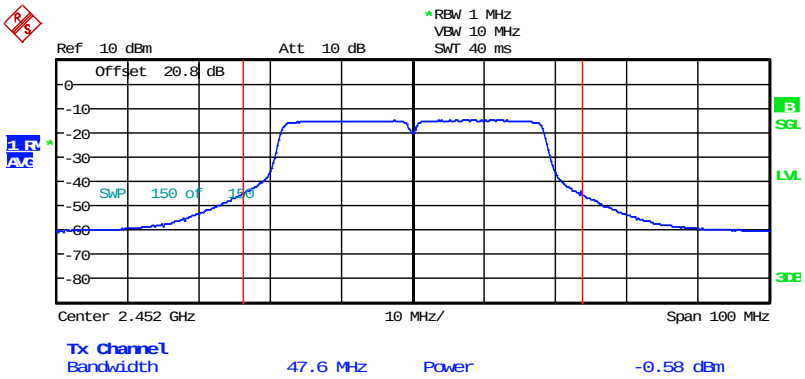
Date: 30.DEC.2014 15:59:23

Figure 7.3.2-22: RF Output Power - Low Channel (Antenna Path 2)



Date: 30.DEC.2014 16:08:47

Figure 7.3.2-23: RF Output Power - Middle Channel (Antenna Path 2)



Date: 30.DEC.2014 16:15:38

Figure 7.3.2-24: RF Output Power - High Channel (Antenna Path 2)

7.4 Band-Edge Compliance and Spurious Emissions-FCC 15.247(d) IC: RSS-210 A8.5

7.4.1 Radiated Spurious Emissions into Restricted Frequency Bands - FCC 15.205, 15.209; IC: RSS-210 2.2, RSS-Gen 8.9, 8.10

7.4.1.1 Measurement Procedure

Radiated emissions tests were made over the frequency range of 30 MHz to 26 GHz, 10 times the highest fundamental frequency. Each emission found to be in a restricted band as defined by section 15.205, including any emission at the operational band-edge, was compared to the radiated emission limits as defined in section 15.209.

The EUT was rotated through 360° and the receive antenna height was varied from 1m to 4m so that the maximum radiated emissions level would be detected. For frequencies below 1000MHz, quasi-peak measurements were made using a resolution bandwidth RBW of 120 kHz and a video bandwidth VBW of 300 kHz. For frequencies above 1000 MHz, peak measurements are made with RBW of 1 MHz and VBW of 3 MHz. Average measurements are performed in the linear scale using VBW of 30 Hz over a 5 second sweep.

7.4.1.2 Measurement Results

Radiated band-edge and spurious emissions found in the restricted frequency bands of 30MHz to 26 GHz are reported in the tables below.

802.11b

Table 7.4.1.2-1: Radiated Spurious Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel = 2412 MHz										
2390	65.72	52.38	H	-1.62	64.10	50.76	74.0	54.0	9.9	3.2
2390	65.37	53.19	V	-1.62	63.75	51.57	74.0	54.0	10.2	2.4
4824	44.47	39.74	H	5.12	49.59	44.86	74.0	54.0	24.4	9.1
4824	42.88	34.81	V	5.12	48.00	39.93	74.0	54.0	26.0	14.1
Middle Channel = 2437 MHz										
4874	45.88	40.93	H	5.25	51.13	46.18	74.0	54.0	22.9	7.8
4874	43.50	35.94	V	5.25	48.75	41.19	74.0	54.0	25.2	12.8
7311	45.31	37.40	H	11.47	56.78	48.87	74.0	54.0	17.2	5.1
7311	43.46	33.78	V	11.47	54.93	45.25	74.0	54.0	19.1	8.7
High Channel = 2462 MHz										
2483.5	66.14	53.25	H	-1.21	64.93	52.04	74.0	54.0	9.1	2.0
2483.5	65.65	52.37	V	-1.21	64.44	51.16	74.0	54.0	9.6	2.8
4924	42.46	35.69	H	5.39	47.85	41.08	74.0	54.0	26.2	12.9
4924	42.06	34.07	V	5.39	47.45	39.46	74.0	54.0	26.6	14.5
7386	43.52	31.35	H	11.68	55.20	43.03	74.0	54.0	18.8	11.0
7386	42.75	30.03	V	11.68	54.43	41.71	74.0	54.0	19.6	12.3

Note: All emissions above 7.386 GHz were attenuated below the limits and the noise floor of the measurement equipment.

802.11g

Table 7.4.1.2-2: Radiated Spurious Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel = 2412 MHz										
2390	69.14	55.23	H	-1.62	67.52	53.61	74.0	54.0	6.5	0.4
2390	67.15	51.64	V	-1.62	65.53	50.02	74.0	54.0	8.5	4.0
4824	41.50	28.28	H	5.12	46.62	33.40	74.0	54.0	27.4	20.6
4824	41.20	27.68	V	5.12	46.32	32.80	74.0	54.0	27.7	21.2
Middle Channel = 2437 MHz										
4874	42.04	30.15	H	5.25	47.29	35.40	74.0	54.0	26.7	18.6
4874	40.11	28.39	V	5.25	45.36	33.64	74.0	54.0	28.6	20.4
7311	48.63	31.53	H	11.47	60.10	43.00	74.0	54.0	13.9	11.0
7311	47.55	30.19	V	11.47	59.02	41.66	74.0	54.0	15.0	12.3
High Channel = 2462 MHz										
2483.5	70.41	54.80	H	-1.21	69.20	53.59	74.0	54.0	4.8	0.4
2483.5	63.76	48.03	V	-1.21	62.55	46.82	74.0	54.0	11.5	7.2
4924	41.25	27.98	H	5.39	46.64	33.37	74.0	54.0	27.4	20.6

Note: All emissions above 7.31 GHz were attenuated below the limits and the noise floor of the measurement equipment.

802.11n 20 MHz

Table 7.4.1.2-3: Radiated Spurious Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel = 2412 MHz										
2390	69.50	55.41	H	-1.62	67.88	53.79	74.0	54.0	6.1	0.2
2390	67.78	51.81	V	-1.62	66.16	50.19	74.0	54.0	7.8	3.8
4824	41.31	28.23	H	5.12	46.43	33.35	74.0	54.0	27.6	20.6
Middle Channel = 2437 MHz										
4874	42.02	29.36	H	5.25	47.27	34.61	74.0	54.0	26.7	19.4
4874	40.72	27.94	V	5.25	45.97	33.19	74.0	54.0	28.0	20.8
7311	49.10	31.53	H	11.47	60.57	43.00	74.0	54.0	13.4	11.0
7311	48.07	29.98	V	11.47	59.54	41.45	74.0	54.0	14.5	12.5
High Channel = 2462 MHz										
2483.5	68.67	54.67	H	-1.21	67.46	53.46	74.0	54.0	6.5	0.5
2483.5	65.40	48.03	V	-1.21	64.19	46.82	74.0	54.0	9.8	7.2
4924	41.61	27.85	H	5.39	47.00	33.24	74.0	54.0	27.0	20.8
4924	40.90	27.44	V	5.39	46.29	32.83	74.0	54.0	27.7	21.2

Note: All emissions above 7.311 GHz were attenuated below the limits and the noise floor of the measurement equipment.

802.11n 40 MHz

Table 7.4.1.2-4: Radiated Spurious Emissions Tabulated Data

Frequency (MHz)	Level (dBuV)		Antenna Polarity	Correction Factors	Corrected Level (dBuV/m)		Limit (dBuV/m)		Margin (dB)	
	pk	Qpk/Avg	(H/V)	(dB)	pk	Qpk/Avg	pk	Qpk/Avg	pk	Qpk/Avg
Low Channel = 2412 MHz										
2390	71.84	54.76	H	-1.62	70.22	53.14	74.0	54.0	3.8	0.9
2390	62.25	50.09	V	-1.62	60.63	48.47	74.0	54.0	13.4	5.5
Middle Channel = 2437 MHz										
All emissions in the restricted bands were attenuated below the limits and the noise floor										
High Channel = 2462 MHz										
2483.5	72.83	54.54	H	-1.21	71.62	53.33	74.0	54.0	2.4	0.7
2483.5	60.26	46.64	V	-1.21	59.05	45.43	74.0	54.0	15.0	8.6

Notes: All emissions above 2.4835 GHz were attenuated below the limits and the noise floor of the measurement equipment.

7.4.1.3 Sample Calculation:

$R_C = R_U + CF_T$

Where:

CF_T	=	Total Correction Factor (AF+CA+AG)-DC (Average Measurements Only)
R_U	=	Uncorrected Reading
R_C	=	Corrected Level
AF	=	Antenna Factor
CA	=	Cable Attenuation
AG	=	Amplifier Gain
DC	=	Duty Cycle Correction Factor

Example Calculation: Peak
Corrected Level: 65.72 - 1.62 = 64.1 dBµV/m
Margin: 74 dBµV/m – 64.1 dBµV/m = 9.9dB

Example Calculation: Average
Corrected Level: 52.38 - 1.62= 50.76 dBµV/m
Margin: 54 dBµV/m – 50.76 dBµV/m = 3.2 dB

7.5 Power Line Conducted Emissions – FCC: Section 15.207

7.5.1 Measurement Procedure

ANSI C63.4 sections 6 and 7 were the guiding documents for this evaluation. Conducted emissions were performed from 150 kHz to 30 MHz with the spectrum analyzer's resolution bandwidth set to 9 kHz and the video bandwidth set to 30 kHz. The calculation for the conducted emissions is as follows:

Corrected Reading = Analyzer Reading + LISN Loss + Cable Loss
Margin = Applicable Limit - Corrected Reading

7.5.2 Measurement Results

Results are shown below.

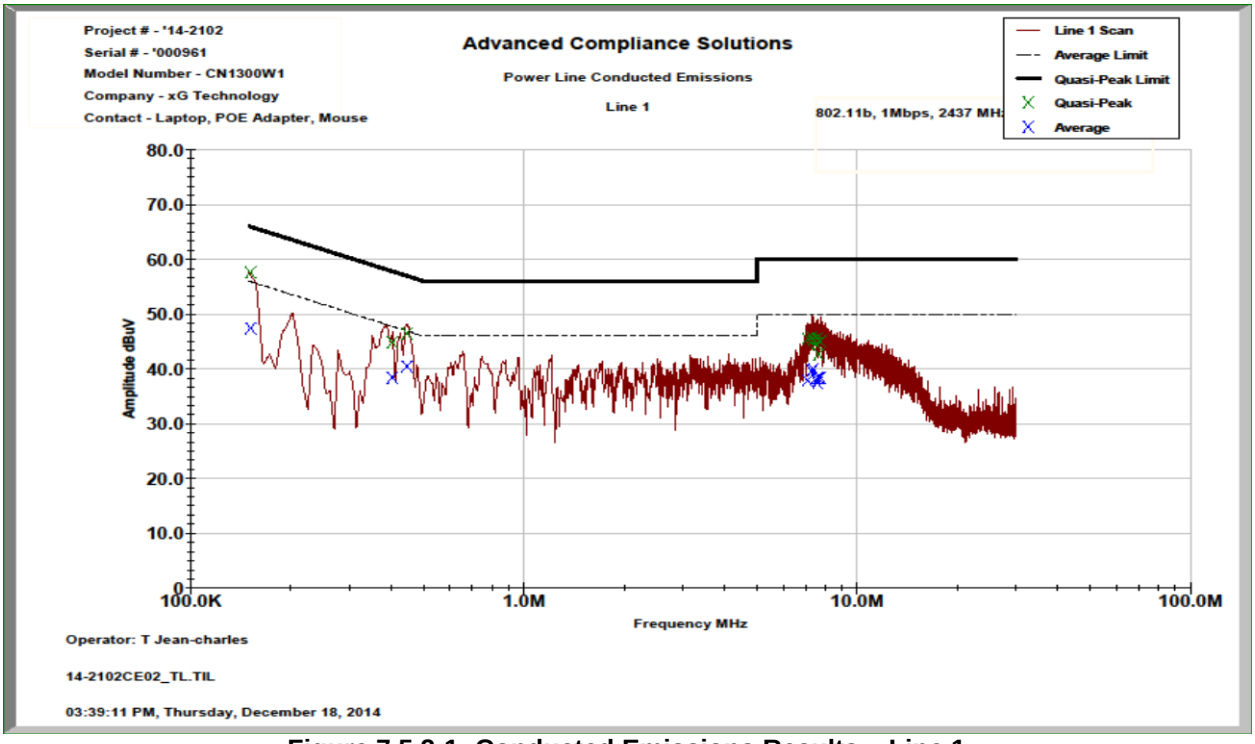


Figure 7.5.2-1: Conducted Emissions Results – Line 1

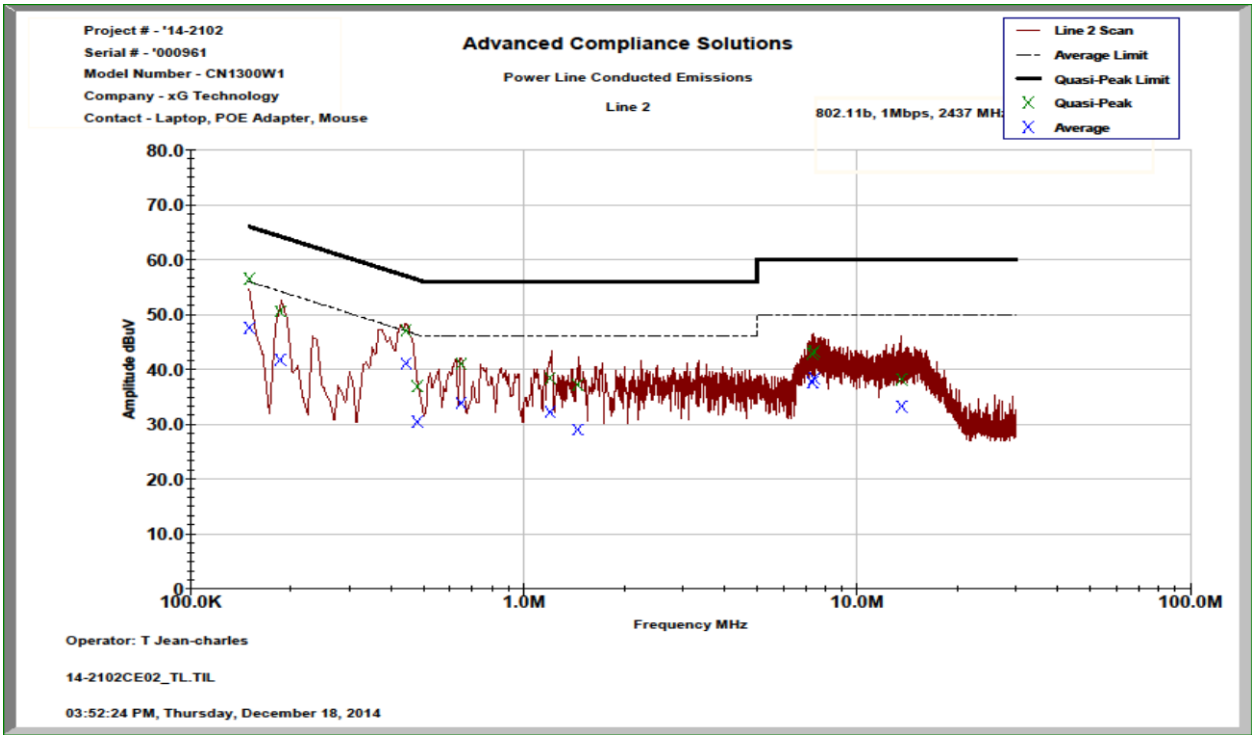


Figure 7.5.2-2: Conducted Emissions Results – Line 2

Table 7.5.2-1: Conducted EMI Results

☒ Line 1 ☒ Line 2 ☐ Line 3 ☐ Line 4
☒ To Ground ☐ Floating
☐ Telecom Port _____
☒ dBµV ☐ dBµA

Plot Number: 14-2102CE02
Power Supply Description: 24VDC POE

Frequency (MHz)	Uncorrected Reading		Total Correction Factor (dB)	Corrected Level		Limit		Margin (dB)	
	Quasi-Peak	Average		Quasi-Peak	Average	Quasi-Peak	Average	Quasi-Peak	Average
Line 1									
0.151444	47.494	37.321	10.10	57.59	47.42	65.92	55.92	8.3	8.5
0.4035	34.787	28.361	10.08	44.86	38.44	57.78	47.78	12.9	9.3
0.446138	36.382	30.404	10.08	46.46	40.48	56.95	46.95	10.5	6.5
7.11071	35.07	27.407	10.40	45.47	37.81	60.00	50.00	14.5	12.2
7.31295	35.269	29.189	10.41	45.68	39.60	60.00	50.00	14.3	10.4
7.40475	34.76	29.414	10.41	45.17	39.83	60.00	50.00	14.8	10.2
7.55881	34.181	27.758	10.42	44.60	38.18	60.00	50.00	15.4	11.8
7.6083	35.061	26.95	10.42	45.48	37.37	60.00	50.00	14.5	12.6
7.67542	32.201	27.841	10.42	42.62	38.26	60.00	50.00	17.4	11.7
7.77262	34.475	27.91	10.43	44.90	38.34	60.00	50.00	15.1	11.7
Line 2									
0.150555	46.406	37.512	10.08	56.48	47.59	65.97	55.97	9.5	8.4
0.185763	40.516	31.732	10.07	50.58	41.80	64.22	54.22	13.6	12.4
0.443637	37.032	31.089	10.05	47.08	41.14	56.99	46.99	9.9	5.9
0.479999	26.837	20.415	10.05	36.89	30.47	56.34	46.34	19.4	15.9
0.649325	30.906	23.818	10.08	40.98	33.89	56.00	46.00	15.0	12.1
1.20083	28.343	22.144	10.08	38.42	32.22	56.00	46.00	17.6	13.8
1.45015	27.09	18.927	10.08	37.17	29.01	56.00	46.00	18.8	17.0
7.34811	32.51	27.215	10.36	42.87	37.58	60.00	50.00	17.1	12.4
7.44313	32.819	27.955	10.36	43.18	38.32	60.00	50.00	16.8	11.7
13.6095	27.523	22.58	10.65	38.17	33.23	60.00	50.00	21.8	16.8

8 CONCLUSION

In the opinion of ACS, Inc. the CN1300W1, manufactured by xG Technology, Inc meets the requirements of FCC Part 15 subpart C for the tests reported in this document.

END REPORT